



## Well Protection in Flood Prone Areas

### What You Need to Know

This Guidance is intended to supplement flood precautions issued by local health and environmental departments. It is recommended by MDE that well disinfections are performed by a MD licensed well driller or a master plumber to ensure that the well is properly chlorinated.

#### WHO NEEDS TO BE CONCERNED?

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Any property owner who has a well in a flood prone area, or homeowners who believe their wellhead may have been flooded.

#### FLOOD PROOF WELL CAPS

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If your well is located in a flood prone area, the well should be fitted with a flood proof well cap. Flood proof well caps are watertight and prevent floodwaters from entering the wellhead.

#### WHAT TO DO IF YOUR WELL IS FLOODED:

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If you have an individual well and know or suspect that floodwaters have entered your well, you should:

**DO NOT TURN ON THE PUMP** - There is a danger of electrical shock and damage to the well and pump if they have been flooded.

**DO NOT DRINK OR WASH WITH THE WELL WATER UNTIL DISINFECTED** - People drinking or washing with water from a private well that has been flooded and not properly disinfected, are at risk of getting sick.

**Assume the well is contaminated** - Assume that the well is potentially contaminated with pathogens and needs to be disinfected. Until disinfection is complete and testing shows the water to be safe, it is best to use a safe source of water. If you know that the flood waters were contaminated with petroleum products (oil sheens or displaced storage tanks in the area), we advise that the well be tested for petroleum contamination prior to use.

**Check the electrical components** - It is recommended that a qualified electrician, licensed well driller, or master plumber perform an electrical system inspection. The electrical system must be dry to function properly.

**Pump Operation** - The pump and check valves can become damaged or malfunction if clogged with sediment from a flood event. Pump operation should be checked and damaging debris removed prior to sustained use of the pump.

- **Pump off muddy water** - If the water is muddy or cloudy, pump the well until the water runs clear. Do not discharge the water into your septic system.
- **Perform an Emergency Disinfection of the Water System** - A reminder: wells are best disinfected by a licensed well driller or master plumber because properly disinfecting some wells may be difficult and require the use of chlorine powder or tablets. However, one method that can be tried is:
  1. Mix two quarts of liquid chlorine laundry bleach with 10 gallons of water and pour the contents into the well. The depth and diameter of your well will affect how much chlorine bleach is needed. A concentration of 50 to 100 parts per million is necessary.
  2. Temporarily bypass any water treatment, especially water softeners, to prevent damage.



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3. Connect a garden hose to an outside tap and re-circulate water back into the well until a chlorine smell is detected in the water coming out of the hose. Then wash down the inside of the well casing and rinse off the well cap.
4. Circulate water through every tap connected to the well until a chlorine smell is detected. Include both hot and cold water taps, toilets, washing machines, showers, dishwashers, and outside hose bibs. Let the water sit for at least 12 hours, preferably 24 hours. Do not use the water during this time.
5. Flush the chlorinated water through a garden hose into a "Safe" area such as a lawn or open field until no chlorine smell is detected. Do not discharge the chlorine solution into an on-site septic system, because highly chlorinated water may damage the system. Do not flush the water directly into a surface water body.
6. Finish flushing the remainder of the system by running each tap until no chlorine odor is detected. This small amount of chlorinated water can be safely put into an on-site septic system.
7. After all the chlorine has been flushed out of the system, have the water sampled and tested by an approved laboratory or health department. If the testing indicates contamination, do not use the water for any purpose unless the water is first disinfected. If testing indicates no contamination is present, water should be used only for bathing and washing. The water should not be used for human consumption until consecutive samples spaced two weeks apart indicate no contamination is present.

**CAUTION:** Because of the extensive flood area and the speed and direction of ground water flow, your well may not be a safe source of water for many months after the flood. The well can become re-contaminated with bacteria or other contaminants. It may be necessary to take long-range precautions, including repeated testing, to protect the safety of drinking water.

### SAMPLING AND TESTING THE WELL WATER

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Contact the local health department or a certified private laboratory to have your well sampled for contamination. For a listing of all state certified laboratories, including private laboratories, see:

[https://mde.maryland.gov/programs/Water/water\\_supply/Documents/MD\\_Cert\\_Drink\\_Water\\_Lab\\_List.pdf](https://mde.maryland.gov/programs/Water/water_supply/Documents/MD_Cert_Drink_Water_Lab_List.pdf)

### FOR MORE INFORMATION

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For further questions regarding individual wells, contact your local health department or the MDE's On-Site System Division at (410) 537-3778.

For questions regarding public water systems and certified labs, contact MDE's Water Supply Program at (410) 537-3702.

For questions regarding petroleum contamination and spills please contact MDE's Oil Control Program at (410) 537-3442.

MDE's emergency response number to report any type of pollution event is 1-866-MDE-GOTO.

For additional information on emergency disinfection of wells:

<https://www.epa.gov/privatewells/what-do-your-private-well-after-flood>