Water Contamination in Private Wells

REPAIR, CLEAN-UP AND DISINFECTION

Wells that have been overtopped by floodwater pose a number of immediate dangers, from electrical shock to serious water-borne illnesses. Therefore, do not turn on your pump after flooding has occurred and do not drink or wash with well water. Your well and pump need to be inspected after a flood. Your well also needs to be properly disinfected and its water tested for safety.

WELL AND PUMP INSPECTION

Swiftly moving floodwater can carry large debris that could loosen well hardware, dislodge well construction materials or distort casing. Coarse sediment in the floodwaters could erode pump components. In some cases, floods may cause some wells to collapse. For all these reasons, you should have professionals inspect your system.

- *Electrical system.* Do not turn on the equipment until the wiring system has been checked by a qualified electrician, well contractor or pump contractor. If the pump's control box was submerged during the flood, all electrical components must be cleaned and dry before electrical service can be restored. Get assistance in turning the pump on from the well or pump contractor.

- *Pump operation.* All pumps and their electrical components may be damaged by sediment and floodwater. The pump, including the valves and gears, needs to be cleaned of silt and sand. If pumps are not properly cleaned and lubricated they can burn out. Get assistance from a well or pump contractor who can clean, repair and maintain different types of pumps.

- *General cleaning of drilled, driven or bored wells.* To avoid damage to the well, have the contractor remove mud, silt and other debris from around the well top. If excessive mud, silt or sediment has entered the well, the pump may need to be removed before cleaning can take place.

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

PUMPING THE WELL

After the contractor services and cleans the well, pump it until the water runs clear to rid the well of floodwater. Depending on the size and depth of the well and extent of contamination, pumping times will vary. If the water does not run clear, get advice from the county or state health department or Extension service.

EMERGENCY DISINFECTION

After flooding, a well must be disinfected to kill bacteria and other potential disease-causing organisms. Wells that are less than 50 feet deep may be contaminated even if there is no apparent flood damage. The following steps apply to drilled, driven or bored wells only. Disinfection should not be attempted for dug wells.

- *Follow the instructions above for pumping the well.*

- *Prepare a chlorine solution.* Approximately 8 quarts of 5.25-percent (or 5 quarts of 10 percent) chlorine bleach such as Hilex, Clorox, etc., should be mixed with 100 gallons of water. It is best to prepare more solution than the amount of water standing in the well; if this amount is unknown, the 100-gallon measure is a safe estimate. Most garbage cans hold 30 gallons or more; therefore, filling three (clean) cans with the solution is sufficient.

- *Pour or pump the solution in the well in one continuous flow.* Attach a hose to a faucet and, making certain the hose itself is clean, place the other end of the hose into the well. Open the faucet and recirculate the chlorinated water for one hour, washing down the inside of the casing and pump piping. Faucets in your house should be opened until you detect a chlorine smell, then close them.

- *Allow the chlorine solution to remain in the well and piping for at least 24 hours, preferably longer.* The system should then be purged free of chlorine. Since it can disrupt a septic system, the chlorinated water should be run outdoors, perhaps into a ditch. It may kill grass and shrubs, and should not be run into a lake or stream.

SAMPLING AND TESTING

Once all flooded wells have been disinfected, wait one week to have the water sampled and tested by a state-certified laboratory or health department. Do not drink the water until two consecutive tests come back safe.

- If the laboratory issues sterile bottles for sampling, carefully follow all instructions for their use.

- If the test comes back unsafe, redisinfect.

- If the test comes back safe, retest in two weeks.

Unfortunately, your well may not be a safe source of water for months after extensive flooding or high groundwater. Wastewater from malfunctioning septic tanks or chemical seepage can contaminate the groundwater even after water was tested and found to be safe. You need to take long-range precautions, including repeated testing, to protect the safety of drinking water. Keep in mind that even under normal conditions, all private wells should be tested annually.

Additional resources:

Your county Extension office, the Wisconsin Department of Natural Resources, the Wisconsin Department of Health and Social Services

Related publications:

UW-Extension publications–

"Drinking Water Contamination: Understanding the Risks," (G3339);

"Maintaining Your Home Well Water System," (G3399);

"Home Water Safety," (G3558, 1-5). DNR publication, "Bacteriological Contamination of Drinking Water."

Information from: University of Wisconsin Cooperative Extension, Environmental Protection Agency, the Wisconsin Department of Natural Resources