

Guidance For What To Do With A Water Well After A Flood

PRIVATE WATER WELLS GUIDANCE FOR WHAT TO DO AFTER A FLOOD WARNING! DO NOT TURN ON THE PUMP!

There is danger of electrical shock and damage to your well or pump if they have been flooded.

WARNING! DO NOT DRINK OR WASH WITH WELL WATER THAT MAY HAVE BEEN IMPACTED BY FLOOD WATER.

People drinking water from a private well without disinfecting will risk getting sick.

This guidance is intended to assist well owners on precautions to take after a flood event submerges the top of the well casing.

WELL AND PUMP INSPECTION

Flood Conditions at the Wellhead - Swiftly moving flood water can carry large debris that could loosen well hardware, dislodge well construction materials or distort casing. Coarse sediment in the flood waters could erode pump components. If the well is not tightly capped, sediment and flood water could enter the well and contaminate it. Floods may cause some wells to collapse.

Electrical System - After flood waters have receded and the pump and electrical system have dried, the system should be checked. Do not turn on the equipment until the wiring system has been checked by a qualified electrician or licensed pump installer. If the pump's control box was submerged during the flood all electrical components must be dry before electrical service can be restored. Get assistance in turning the pump on from a licensed pump installer or licensed electrician.

Pump Operation - All pumps and their electrical components can be damaged by sediment and floodwater. The pump including the valves and gears will need to be cleaned of silt and sand. If pumps are not cleaned and properly lubricated they can burn out. Get assistance from a licensed well driller or pump installer who will be able to clean, repair or maintain different types of pumps.

CLEANING THE WELL

Drilled, driven or bored wells - To repair damage to the well, contact a licensed well driller or licensed pump installer to remove mud, silt and other debris from around the top of the well. If you suspect excessive mud, silt or sediment has entered the well, consult with a licensed well driller or pump installer on the situation. If there are voids around the well casing, you should contact a licensed

water well driller to backfill with bentonite or cement grout into the area where backfill has been removed from around the well casing. The pump may need to be removed for bailers to remove mud and silt from the bottom of the well. A listing of licensed water well drillers and pump installers may be obtained by contacting your local assistance center by phone 1(888) 891-8332 or the Division of Water Supply web site, www.state.tn.us/environment/ .

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

PUMPING THE WELL

After the well has been cleaned, pump the well until the water runs clear to rid the well of flood water. Depending on the size and depth of the well and extent of contamination, pumping times will vary. If the water does not run clear, contact the county or state environmental program.

EMERGENCY DISINFECTION OF WELLS THAT HAVE BEEN FLOODED

Drilled, driven or bored wells - These wells are best disinfected by a licensed water well driller or pump contractor because it is difficult for the private owner to thoroughly disinfect these wells. However, one method that can be used is described below:

1. After you are sure that the pump and electrical components are in operating order, pump the well for several hours to reduce cloudiness and contaminant levels in the water. The amount of time you pump the well depends on the yield and depth of the well. You may need to pump the well off and on at 45 minute intervals to reduce the potential of running the well out of water and damaging your pump motor.
2. Turn the power off from to your pumping system and pour into the well 1 gallon of standard chlorine bleach or 1 ounce of HTH super chlorinated solution for every 50 feet of water in the well. Use containers of chlorine bleach that have not been previously opened.

To safely chlorinate your well, you should use safety goggles, gloves, and appropriate clothing. Follow chlorine product manufacturer's instructions. Concentrated chlorine can produce holes in clothes and skin burns. Use chlorine in a well ventilated area.

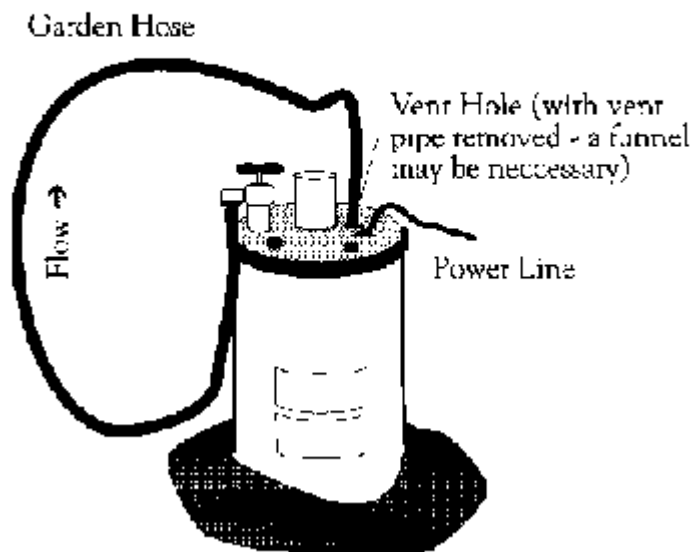
With one end of a garden hose attached to a nearby facet, place the other end of the garden hose so the discharging water will flow into the well through the top of the well casing. This will allow water being pumped from the well to be circulated back into the well as an aid in getting the chlorine solution dispersed in the well and pump intake.

The two basic types of well seals used in Tennessee are either “sanitary seals” or “standard well caps” with tension screws located on the side of the well cap. Well caps with tension screws may be removed by loosening the screws located on the side of the well cap with a wrench or screwdriver. The garden hose can be lowered into the well.

A sanitary well seal can be identified by the water discharge pipe being located at the center of the cap with four bolts and one vent hole around the discharge pipe. You can loosen the sanitary cap by loosening the bolts located on top of the cap to release the gasket between the top and bottom plate of the well cap. Use caution in loosening the bolts - do not completely remove the bolts because the bottom plate of the well seal will become lodged in the well. You can then bump the seal with a rubber mallet to loosen the seal and insert the garden hose into the well. Lower the garden hose approximately three feet below land surface to get below any electrical connections (wire nuts) of the well and turn the power back on to your pumping system. Pump water through the garden hose until the water coming from the garden hose smells of chlorine.

If you are unable to remove the well seal, you can introduce the chlorine solution through the vent hole of a sanitary seal by using a funnel. The garden hose may be placed on top of the funnel or vent to circulate water into the top of the well.

Wellhead set up to circulate chlorine solution within well. Adequate circulation within the well is needed prior to turning on faucets in the house.



- Pump water through all outlets in the plumbing by opening faucets until water smells of chlorine. If it does not, add more chlorine bleach to the well. Shut the power off to the well system and remove the garden hose from the system and recap the well. Turn the power back on to the pumping system.
3. With all faucets off, let the system sit for 24 hours.
 4. Turn on the pump by running water from all faucets until the chlorine odor disappears. You may wish to pump the well periodically to limit the potential of pumping the well dry and damaging the pump. Do not run heavily chlorinated wastewater through a septic tank system or discharge it to a surface water body. Chlorine may also damage vegetation so select an area away from any trees or shrubbery which may be impacted by the water.
 5. If the well water is not continuously disinfected by a water treatment unit wait approximately 10 days to have the water sampled and tested by an approved laboratory or health department. This water should **not** be considered safe for drinking until laboratory results indicates it is safe. If continuous disinfection is used, have the water tested after the heavily chlorinated water is removed from the well.
 6. If testing indicates contamination, do not use the water for any purpose unless the water is first disinfected. This water can be used for drinking or cooking only if it is disinfected. To do this, boil the water for one minute or add 10 drops of bleach to one gallon of water (Mix and let stand for 30 minutes before drinking).

CAUTION: Your well may not be a safe source of water for many months after the flood, especially if the flooded area was extensive. Contaminated flood water may have impacted the ground water in your area, depending on the speed and direction of ground water flow. The well can become contaminated with bacteria or other contaminants. Wastewater from malfunctioning septic tanks or chemicals seeping into the ground can contaminate the ground water even after the water was tested and found to be safe. It will be necessary to take long-range precautions, including repeat testing, to protect the safety of your drinking water.

SAMPLING AND TESTING THE WELL WATER

Contact the environmental staff at the local health department to have well water sampled and tested for contamination. There is a nominal fee for this service.

If a private laboratory issues sterile bottles for the well owner to collect water samples, follow all instructions for the use of these bottles.

After the pump is back in operation, the well owner should have the well sampled and tested at regular intervals unless the water is continuously disinfected.

CONCERNS AND ADVISORIES

If in doubt about the well water supply, follow recommended state guidance on drinking and bathing advisories. If you need additional information, you can contact the local health department or the nearest Tennessee Environmental Assistance Center at 1-888-891-8332.

Remember that there is a danger of electrical shock from any electrical device that has been flooded; consult a certified electrician. Rubber boots and gloves are not adequate protection from electric shock.

Well disinfection will not provide protection from pesticides, heavy metals and other types of non-biological contamination. If such contamination is suspected, due to the nearness of these contaminant sources, special treatment is required. Information on home water treatment units (also called point-of-use and point-of-entry units) is available from U.S. EPA by phoning the Safe Drinking Water Hotline (1-800-426-4791). If you observe chemical containers (including barrels and drums) that have moved to your property, call your state Environmental Assistance Center at 1-888-891-8332 or the EPA Superfund Hotline (1-800-424-9436).

For information on long-term water quality conditions in the area, consult the state or county health department. Well owners may have information about the construction, or testing of their well and this information may be helpful in determining water quality conditions.

Septic systems should not be used immediately after floods. Drain fields will not work until underground water has receded. Septic lines may have broken during the flood.