



DISINFECTING FLOODED DOMESTIC WELLS

This document will help residents of Merced County restore their flooded domestic wells to safe operating conditions.

FLOODED WELLS

Flood water is highly contaminated water. It can carry disease-causing germs from sources such as septic tanks, sewers, and animal waste.

If flood water has come within a few feet of a well, the well should be thoroughly disinfected before the water is used for domestic purposes (drinking, food preparation and clean up, wound care, personal hygiene, etc). The well should be disinfected as soon as possible after the flood is over (when the source of contamination has been removed). Disinfection will kill only the disease-causing germs that are already in the well, not any that enter the well after the disinfection is done.

If the well was not properly constructed originally, was in poor condition, or was damaged by the flood, the well may require repair or rebuilding before performing the disinfection. A properly functioning sanitary seal is most important.

DISINFECTING A WELL

1. Pump water from the well to the surface of the ground until the water looks clear.
2. Pour bleach directly into the well casing. It may be necessary to lift the sanitary seal and pump, but most wells have an opening with a plug (½-inch to 1-inch) that can be used for this purpose. (See page 2 for type and amount of bleach to use.)
3. Keep the pump from operating for 30 minutes after adding bleach. Then open one or two outside faucets closest to the pump, and surge the well by starting and stopping the pump several times.
4. Open the outside faucet closest to the pump and let water flow until clear water with a strong smell of chlorine flows out. Close the faucet and repeat the procedure for every outdoor faucet, opening and closing one at a time. Then do the same with all indoor faucets.
5. Close all the faucets. Add more bleach to the well. Use at least half the amount added in Step 2. Then keep the pump from operating for 24 hours.
6. After the 24-hour period, open all of the outside faucets and flush the system until all of the chlorine odor is gone. Open more than one faucet at a time if the pump is capable of keeping up. Close all the outside faucets and repeat the procedure using all indoor faucets.
7. Before reusing the water for domestic purposes, it is important to confirm the safety of the water by having a coliform bacteriological analysis performed on a sample from the well. Contact the Merced County Division of Environmental Health (MCDEH) to arrange for this analysis. There will be no charge for MCDEH to do the sample collection and analysis.

TYPE OF BLEACH TO USE

Use ordinary, unscented, liquid household bleach. This bleach must contain chlorine in the form of about 5% or 6% sodium hypochlorite. Clorox[®] and Purex[®] are two common trade names for household liquid bleach. Liquid swimming pool chlorine can also be used, if it does not contain stabilizer.

AMOUNT OF BLEACH TO USE

The amount of bleach needed depends on the size of the well casing and depth of the well. If using liquid swimming pool chlorine, use half the amount indicated below because it contains about 10% to 12% sodium hypochlorite.

If the well is 100 feet deep or less, use the following table to find the amount of bleach needed.

<u>Diameter of Well Casing</u>	<u>Amount of Bleach</u>
4 inches	½ gallon
6 inches	1 gallon
8 inches	1½ gallon

For wells over 100 feet deep, increase the amount of bleach used proportionately (if it is 200 feet deep, use two times as much). While adding too much bleach does not cause a problem, adding too little can result in inadequate disinfection.

TREATING SMALL QUANTITIES OF WATER FOR PERSONAL USE (5 gal. or less)

Drinking water contaminated by flood water can be highly contaminated and appear cloudy. The treatment techniques below can be made more effective if the water is first filtered or allowed to stand and sediment to settle to the bottom. Use the clearer water for further treatment and discard the cloudy water.

BOILING: Boil vigorously for 3-5 minutes. To improve taste, pour the water from one clean container to another several times. This will add some air to the water.

PURIFICATION TABLETS: These tablets are available at most drugstores and where camping supplies are sold. Follow the directions on the package.

BLEACH PURIFICATION: Liquid household bleach can be used by adding the bleach in accordance with the following table. The goal is a concentration of at least one part per million of residual chlorine (1.0 ppm). Mix the chlorine and water thoroughly and let stand for 30 minutes before using.

<u>Amount of Clear Water</u>	<u>Amount of Bleach</u>	<u>Amount of Cloudy Water</u>	<u>Bleach</u>
1 quart	2 drops	1 quart	4 drops
1 gallon	8 drops	1 gallon	16 drops
5 gallons	½ teaspoon	5 gallons	1 teaspoon

ADDITIONAL INFORMATION

Call the Merced County Division of Environmental Health at (209) 381-1100. if you have questions about the disinfection of wells.