Disinfecting Wells and Water Sources

The following instructions are for the disinfection or treatment of wells and private water sources that have been subjected to flood, storm water, or other possible sources of contamination. **If the well casing is submerged in flood water, DO NOT USE THE WATER**. Water from submerged wells cannot be safely sanitized. When flood waters recede, small quantities may be disinfected until the well can be properly chlorinated.
After flood waters recede, or the cause of contamination is eliminated, wells can be disinfected with chlorine. A convenient form to use is sold commercially in grocery or other stores as liquid chlorine laundry bleach. Most of these products contain 5.25 percent solution or more of sodium hypochlorite when fresh, and is equivalent to 5 percent available chlorine.

1. Determine the Amount and Add the Chlorine Disinfecting Solution
The quantity of chlorine solution needed to disinfect a well is based upon 100 parts of chlorine to a million parts of water. To eliminate mathematical calculations, it is safe to use the following quantities and methods to disinfect the different types, sizes, and depths of wells and water sources.

A. Drilled or Driven Wells- Use one quart of the commercial 5 percent chlorine solution for each 100 feet of well depth in a drilled well which is four inches in diameter. For two-inch driven wells, or smaller, add one cup for each 25 feet of water.

1. The measured solution should be diluted with water to make about three (3) gallons. Water drawn from the contaminated well is suitable for this purpose.
2. Pour the diluted chlorine solution directly into the casing of a single tubular well, or into the annular space between the outer casing and the drop pipe, of a double tubular well.
3. If the well is sealed and the pump drop pipe is not equipped with a foot valve at the bottom, and does not have a cylinder in the way, it is also possible to pour the solution down through the pump and drop pipe.

B. Dug Wells- Dug wells which have become contaminated should first be pumped dry, cleaned, and the walls scrubbed down. If it is not possible to pump the well dry, the pumping should be continued until the water becomes clear. The well should then be allowed to fill, and, if the water is still not clear, it should be pumped out again.

When the water is clear, the well should be disinfected using the following quantities of 5 percent chlorine solution for each foot of depth of water in the well:

Diameter of Well	Quantity 5 Percent Chlorine Bleach
1 to 3 feet	1.5 Cups
4 feet	3.0 Cups
5 feet	4.5 Cups
6 feet	6.0 Cups
8 feet	12.0 Cups
10 feet	18.0 Cups

Add this quantity of chlorine bleach directly into the well interior.

C. Cisterns- Cisterns, spring collection basins, or drinking water storage tanks should be disinfected in the same manner as dug wells. Pump out, or drain the water in the cistern; scrub down the interior walls; fill or allow the tank to refill with clear water; and, if it is not known, calculate the capacity of the tank or containment by using one of the following formulas:

a. Square or Rectangular Tank measure in feet:
Capacity (gallons) = Length x Width x Depth x 7.5

b. Cylindrical Tank measure in feet:
Capacity (gallons) = Diameter x Diameter x Length x 5.9

c. Add the amount of 5 percent chlorine solution indicated in the following table:

Capacity (Gallons)	Quantity of 5 Percent Chlorine Bleach
500	5.0 Quarts
750	7.5 Quarts
1,000	10 Quarts
2,000	20 Quarts
4,000	40 Quarts

This amount of chlorine bleach should be poured directly into the cistern or storage tank.

2. Allow Time for Disinfection of the Water Source and Distribution System
After the well, cistern, or storage tank has been dosed with the appropriate amount of chlorine, it should be pumped just long enough to bring the treated water through the pump to all faucets on the distribution system. The odor at the faucets will be a good test to indicate chlorine presence. If the above dosages do not produce an obvious chlorine odor in the water, add more chlorine bleach solution until a distinct odor is noticed.

Let the chlorinated well and distribution system stand for 12 to 24 hours. This will allow time for the chlorine solution to disinfect the well, or water source, and distribution system. After at least 12 hours, the system should be pumped to waste until no further trace of chlorine is noticeable in the water.

If you have public or municipal sewers, run each tap until the disinfectant odor disappears, while allowing the water to go down the fixture drain. If you have a septic system, it is preferable to first connect a garden hose to an outside faucet or hydrant and run the water into a roadside ditch or drainage swale, until the disinfectant odor disappears. Then, turn on each water faucet to discharge the chlorine residual in the immediate vicinity of the faucet.

3. Sample the Water for Bacteriological Analysis before Use
Following disinfection of the water supply system, the water should be sampled for bacteriological analysis. Remember that no water should be used for drinking or food preparation, unless it is first boiled or treated, until a satisfactory report is obtained from a laboratory. The safety of water cannot be judged by color, odor, or taste. The organisms that cause water-borne disease cannot be seen.