



CHLORINATION AND DISINFECTION PROCEDURES

PRIVATE WELL WATER SUPPLIES

WELL POLICY (WP-CD)

IT IS ADVISED THAT YOU READ THIS ENTIRE PROCEDURE BEFORE YOU BEGIN THE CHLORINATION PROCESS.

DOSAGE

Drilled Wells: Use either 1-cup of liquid chlorine laundry bleach (5 $\frac{1}{4}$ % chlorine) or $\frac{1}{3}$ cup of granular swimming pool type chlorine (70% available chlorine) per 20 feet of well depth. The granular form of chlorine is preferred for wells deeper than 100 feet. Regardless of the depth of the well, the Harford County Health Department (HCHD) recommends to use half liquid bleach and half granular chlorine for the well disinfection process. The above concentration of chlorine should ensure an adequate amount to properly disinfect the system – approximately 100 ppm.

Note: If you have water treatment equipment, you must check with the manufacturer and/or the installer of the equipment to determine if the chlorine will harm the system and to determine what chlorine levels can be used to disinfect the treatment equipment.

Dug or Augured Wells: Dug and augured wells will not be certified by the HCHD as potable water supplies. Wells of this type of construction rely on shallow water sources which cannot be properly protected. However, if you wish to disinfect this type of well, HCHD recommends you use the following quantities of chlorine. For wells 3 feet in diameter, use 1 $\frac{1}{2}$ cup of bleach per foot of standing water. For wells 4 feet in diameter, use 2 cups of bleach per foot of standing water.

Note: Regardless of the type of water supply, if the water is cloudy or contains iron, double the dosage to ensure sufficient disinfection.

PROCEDURE

1. Evaluate the condition of your well:
 - a. If the well was drilled after 1980, the well casing should be at least eight (8) inches above the ground surface and have a two-piece vented cap. The casing and electrical conduit should be evaluated for any signs of damage. If any deficiencies are observed, they should be corrected before proceeding with the chlorination process.
 - b. If the well was drilled prior to 1980, the above construction standards may not be present. Some wells may be buried or installed in pits. These types of wells may not respond to the disinfection/chlorination process. Therefore, the Health Department recommends upgrading the construction of the well, so that the well terminates above grade and has the proper type of cap installed. In addition to providing a safer water supply, extending the casing above grade provides easier access for future maintenance. Please contact a Master Well Driller or Licensed Plumber for assistance.
2. Disable the hot water heater because heated water breaks down the chlorine residual present.
 - a. Turn off any electric hot water heater at the circuit breaker.
 - b. Turn any gas hot water heater control to “pilot”, or as directed by the unit’s instructions.
3. Remove the well cap and introduce the appropriate amount of chlorine directly into the well. It is recommended that granular chlorine be partially dissolved in a clean plastic bucket filled with warm water, prior to being introduced into the well. A small amount of solid chlorine should be allowed to sink to the bottom of the well to ensure complete disinfection of the water column.

Note: Some brands of chlorine tablets are time- released or are in a slow dissolve form; these types should not be used.

4. Insert a hose connected to an outside faucet or the tap at the base of the pressure tank into the top of the well and re-circulate water into the well for two hours to ensure mixing of the chlorine and water. With the hose, thoroughly rinse the interior walls of the casing, cap, pump apparatus and piping, and install the cap. If you use a pump recovery rope, this rope must terminate inside the well casing.
5. Run the outside faucets one at a time until a strong odor of chlorine is present. Any water lines to out - buildings must also be chlorinated. **Remember; do not run the chlorinated water through any treatment/filtration device(s) without first checking with the manufacturer or installer.**
6. Run all plumbing fixtures inside the house, hot and cold, until a chlorine odor is detected at each fixture. The chlorinated water must also be run through any appliances such as ice-makers, kitchen sink sprayers, dishwashers, showerheads and washing machines.
7. The chlorinated water must remain in the system a minimum of twelve (12) hours; twenty-four (24) hours is preferred. Do not use any water during this time. **Caution:** Using water with high levels of chlorine can cause injury to the eyes, skin, and clothing.
8. After the holding time, test the water for chlorine residual. (A swimming pool test kit can be used.) There should be at least 5 ppm (mg/l) of chlorine residual in the system. If less than 5 ppm, the system may not have been adequately disinfected and should be re-chlorinated following steps 3-7. If the residual chlorine level is acceptable; the water system must be purged to eliminate the chlorine.
9. To purge the system of chlorine, start at an outside faucet or the tap at the base of the pressure tank using a hose discharging to the sump pump or outside onto the surface of the ground. **It should not be discharged into the septic system.** This water, containing chlorine, should not be used for irrigation or human and animal consumption. Once the chlorine residual is no longer present from the first location being flushed; flush the remainder of the fixtures of the plumbing system, including the hot water heater and other appliances. It is recommended that you run the well pump one (1) to two (2) hours at a time, allowing an equal amount of rest time between flushing.
10. The chlorine level must be zero (0) before a water sample can be secured. Again these levels can be verified by your swimming pool test kit. Please Note: The chlorine residual should be reduced to below 4.0 ppm before resuming use of the water.

After having completed this chlorination procedure, your water supply needs to be sampled to verify it is safe for human consumption. It is recommended that the first water sample should not be collected until at least seven (7) days after the chlorine is completely removed from the system. For a new or replacement well, two (2) consecutive good bacteriological samples taken a minimum of seven (7) days apart without the influence of chlorine between samples, and a satisfactory test for nitrates, turbidity, and sand is required by the Code of Maryland Regulation (COMAR) 26.04.04. for the issuance of a Certificate of Potability (COP). Public Water Systems may have different sampling requirements than a private system, therefore, please contact the Health Department for verification of sampling parameters.

To expedite sampling of a water supply, the use of a private state certified laboratory and state certified water sampler is recommended. To schedule a water sample with the Health Department or if you have any questions regarding these procedures, please feel free to contact this office at 410-877-2302.