



## Well Disinfection

Well disinfection is recommended when well water is contaminated with bacteria. Bacteria that contaminate water are common in the soil. Contamination may occur when the well is drilled, when repairs are made to the pump or plumbing, or as a result of leaks in the well casing. If groundwater itself is the source of the bacteria, continuous disinfection or well modifications (such as a well liner) may be necessary to ensure a safe water supply.

*Well chlorination* introduces very high levels of chlorine into a water system. During the disinfection process, water from the system is not suitable for consumption or extended contact by people or animals. Plan to perform the disinfection process when the faucets and toilets will not be in use for 12 to 24 hours. A well driller or plumber can provide assistance with well chlorination.

The recommended amount of chlorine required for well chlorination can be found in the table below. Once the amount of chlorine needed is determined, follow the chlorination procedure described on the other side of this page.

Depth of Well	Amount required for chlorine solution of 100 pm (6-inch casing)*	
	Unscented Household Bleach (5.25% available chlorine)	Calcium Hypochlorite (70% available chlorine/ HTH) **
100'	8 cups or 2.0 qts (1/2 gal)	4.5 oz
150'	10 cups or 2.5 qts (5/8 gal.)	6.0 oz
200'	12 cups or 3.0 qts. (3/4 gal)	7.5 oz
250'	14 cups or 3.5 qts. (7/8 gal.)	8.5 oz
300'	4.0 qts. (1 gal.)	10 oz
350'	4.5 qts. (1 1/8 gal.)	11.5 oz
400'	5.2 qts. (1 1/4 gal.)	12.5 oz

\* Calculation allows for volume of water in well and ~100 gallons contained in house plumbing.

\*\* NCDNR recommends using granular Calcium Hypochlorite rather than unscented bleach.

- **Avoid direct skin contact with chlorine.** Rubber gloves, goggles, and appropriate clothing should be used when chlorinating a well. Flush with water if skin contact occurs.
- Use only unscented bleach with no additives.
- More is not always better. Excess chlorine can cause problems and will take longer to flush out of the system.
- Electrical wiring may be exposed at the well head. Always take precautions when working around electricity.

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## Well Chlorination Procedure

- 1) Fill a 5 gallon bucket with 3 to 4 gallons of water and carefully add the recommended amount of chlorine and mix.
- 2) Using a funnel, pour the solution into the well casing by partially removing the sanitary seal or by removing the air vent.
- 3) Attach a garden hose to the spigot located at the well or an outside house spigot. Place the other end of the hose into the well head or into the air vent (this may require the use of an appliance hose).
- 4) Open the spigot and allow the chlorinated water to circulate in the well for at least two hours, insuring that the inside of the casing is washed down. Once this step is completed, close the spigot and disconnect the hose. The well head should be reassembled and all openings sealed.
- 5) Systematically open every tap inside and outside of the house until the smell of chlorine is detected and then turn the tap off. Toilets should also be flushed and showers turned on until the smell of chlorine is detected.
- 6) Once the chlorinated water is distributed throughout the plumbing system, it must be allowed to sit for at least 12 hours.
- 7) When the disinfection process is completed, the chlorinated water must be flushed out of the system. The majority of the chlorinated water should be discharged through an outside tap using a garden hose. The water can be directed to a wooded area or road ditch. Note: Chlorinated water can damage plants and should not be consumed by animals. The water should not be discharged into a septic system or into a body of surface water.
- 8) Household use of the water can begin once the odor of chlorine is no longer detected. ***The water should be retested within 1 to 2 weeks after the chlorination process to insure that bacteria are no longer present.***

### Emergency Disinfection of Water Supplies

If you are unsure your water supply is safe to drink, water can be boiled or treated to kill harmful organisms that may be present.

- The EPA recommends ***boiling water for at least 3 to 5 minutes*** before use.
- Unscented household bleach (5.25% chlorine) can also be used to disinfect water. **Add 8 drops of bleach to 1 gallon of clear water (16 drops (1/8 tsp) to 1 gallon of cloudy water), shake and let sit 30 minutes before drinking.**

#### Other useful sources of information:

NC Division of Water Quality  
U.S. Environmental Protection Agency  
National Drinking Water Clearing House

<http://gw.ehnr.state.nc.us>  
[www.epa.gov/safewater/drinklink.html](http://www.epa.gov/safewater/drinklink.html)  
[www.estd.wvu.edu/ndwc](http://www.estd.wvu.edu/ndwc)