



WELL CLEANING/DISINFECTION INSTRUCTIONS

WARNING- Perform this procedure at your own risk! Clean Water Testing is in no way responsible for actions taken during this procedure that would cause damage to people or property involved in the process. If you are not comfortable with this procedure please call Clean Water Testing, or a licensed well driller/pump installer to perform this task for you.

NOTE: If you are located in an area where naturally occurring arsenic is a concern, please see and follow the "Well Chlorination in Arsenic Sensitive Areas" publication from the Wisconsin DNR.

You will need the following materials: 1-3 gallons of household chlorine bleach, garden hoses, leather gloves, five gallon pails, and tools to remove your well cap. **Note:** This project will leave you without usable water for 8-30 hours. You may want to set aside some water for personal use before getting started.

1. **By-pass your water softener, water heater, and other water treatment equipment** (if you are unable to bypass the water heater do not use hot water until the well cleaning is complete).
2. Fill two, five gallon pails of water and place them next to your well (you will need these later).
3. Turn off the power to the well pump, or the main breaker.
4. Remove vertical bolts (or loosen setscrews) and remove your well cap. Removing some types of well caps may require professional assistance. Use leather gloves to lift **excess** electrical wires out of the well casing (if wires are cracked or bare, they should be taped or replaced). Always use care around electricity; some wells use 220 volts.
5. Add the calculated amount of household bleach and saltwater to your well (see page 2 for the recommended amounts).**WARNING-STRONG CHEMICAL - USE WITH CAUTION!**
6. Turn the power to your well pump back on.
7. Attach garden hose to an outside hose bib and run water into your well -- wide open. Continue running water into the well for one-half hour. This will mix the bleach and water in your well. At this point your water may appear off color which is normal.
8. At each faucet (inside and outside) remove the faucet screens (aerators) and turn on each cold water faucet, individually, until you smell bleach; then turn the faucet off and go on to the next one. Be careful not to get too much chlorine into your septic tank. Your family may flush the toilet a couple of times if necessary. More than that could kill needed bacteria in your septic tank.
9. Turn off all the water inside and outside of your house. Add the 10 gallons of clean water (from step #2) to your well to wash the chlorine off of the inside of your well and pump wires. Put your well cap back on, and **let the entire system sit quietly for 3 to 8 hours**. Do not use any water if possible.
(Notice: Do Not Drink Any Water Which Smells or Tastes of Chemicals!!)
10. After using no water for 3 to 8 hours, run chlorinated water from an outside faucet for **5 to 10 hours** or until the water clears up and the smell of chlorine disappears. Run the chlorinated water to a non-sensitive area as the bleach may kill sensitive plants and grasses. Take care not to run bleach into lakes, rivers, or streams. **Bleach will kill aquatic life.** Once you can no longer smell chlorine coming out of your garden hose, turn on water at each faucet to flush the chlorine out of the water lines in the home.
11. Put your water softener, and water heater back in service.
12. **Test or retest your water** for bacteria. A special lab bottle is required. Test within one week after cleaning, and again in two weeks if your original water sample was "unsafe". Call Clean Water Testing for a sample bottle. 1-800-801-7590.



AMOUNT OF CHLORINE AND SALT NEEDED

STEP 1: Determine how deep the well is and depth to water. The best way to obtain this information is from the well construction report of your well (if available).

Example

Q: How much water is in a 6 inch diameter well that is 275 feet deep and the water level in the well is 50 feet down from the top of the well.

A: There is 225 feet of vertical water in the well

STEP 2: Calculate the volume of water in your well using TABLE A.

Example

Q: What is the volume of water in a well with 225 vertical feet of water?

A: 225×1.469 (TABLE A) = 330.5 gallons of water in the well

TABLE A

Diameter of Casing (Inches)	Gallons per foot of Depth
4	0.653
5	1.020
6	1.469
7	2.000
8	2.611

STEP 3: Using TABLE B determine the quantity of chlorine needed to disinfect the well. The chlorine concentration should not exceed 200 mg/l, too much chlorine can result in a LESS effective well cleaning, and could harm the well. NOTE: Higher chlorine additions may be needed to obtain the concentrations listed in TABLE B if bio-film and/or hydrogen sulfide (or other gases) are present in the water.

TABLE B

Desired Chlorine Concentration	Sodium hypochlorite (common household bleach) per 100 gallons of water (5% available chlorine)	Dry calcium hypochlorite tablets per 100 gallons of water. (70% available chlorine)
100 mg/l	0.175 gallons (0.7 quarts)	0.14# (approx. 3 oz.)
200 mg/l	0.35 gallons (1.4 quarts)	0.30# (approx. 5 oz.)
300 mg/l	0.55 gallons (2.2 quarts)	0.40# (approx. 7 oz.)
400 mg/l	0.725 gallons (2.9 quarts)	0.50# (approx. 8 oz.)

STEP 4: Calculated the amount of chlorine that you need.

(Gallons of water in well / 100) x Value from Table B = Amount of chlorine needed

Example

$(330.5/100) \times .35$ Gallons = 1.16 Gallons of Bleach for a 200 mg/L concentration

STEP 5: OPTIONAL - Determine amount of salt desired using your figure from STEP 2 and TABLE C. Up to a 10% concentration is recommended. Do not use rock salt or any salt that may have additives in it. A food grade solar salt is recommended. Dissolve the recommended amount of salt into water and add the saltwater solution to the well after you add the chlorine.

TABLE C

Concentration of Salt	Salt Needed for 100 gallons of water
1%	8.3 pounds
4%	33.3 pounds
10%	83.3 pounds