



Domestic Well Disinfection Procedure

If your DOMESTIC well water has tested positive for coliform or fecal coliform bacteria you can safely disinfect the well system using household bleach by carefully following the instructions below. These instructions can also be used to shock chlorinate your well system if you have problems with iron bacteria. **NOTE: The use of household bleach for disinfecting PUBLIC water supplies is not allowed.**

When it comes to adding chlorine to your well system, **more is not better**. Only use the amounts of chlorine recommended for shock chlorination of iron bacteria if you have a significant iron bacteria problem. **Be aware that these procedures may loosen sediment, rust, and biofilm deposits within the well system, causing temporary problems with sediment, rust particles, discoloration and plugging of filters and screens.**

CAUTION: Liquid chlorine bleach can be hazardous! It is a strong oxidizing agent. Prolonged contact with concentrated bleach can cause corrosion of well casing and well equipment.

- *Wear eye protection and rubber gloves when handling liquid chlorine bleach.*
- *Never mix liquid chlorine bleach with other household cleaners! It will react with many common household products (including toilet bowl cleaners, rust removers, vinegar, acids, and ammonia based products) and produce highly toxic chlorine gas or other toxic chlorine*

If you have questions regarding the procedures below, or the safe handling of liquid chlorine bleach, contact the Gallatin Local Water Quality District at 582-3148 for assistance.

Inspect Your Well for Common Problems Before Disinfecting

Non-sanitary well caps and poor drainage around well casings are two common potential sources of bacterial contamination that well owners can fix. Inspect your well cap to determine if it is a sealed “sanitary” cap or an unsealed “non-sanitary” cap. A sanitary well cap has one or more rubber seals and a screened air vent. Inspect the ground around the well casing for depressions or open holes that may be allowing stormwater to soak into the ground around the well. Fill any holes and grade the surface so that water drains away from the well. Use clay soil, not sandy or gravelly soil for these repairs.

If your well cap is a non-sanitary type, it is highly recommended that you replace it with a sanitary well cap prior to disinfecting your well system.

STEP-by-STEP INSTRUCTIONS for DISINFECTING

Step 1: Store some water for use while disinfecting the well system.

Fill several clean containers with water for use in washing dishes, flushing toilets, etc. Do not use this water for drinking unless it is boiled for at least 5 minutes. Consider purchasing bottled water for drinking while disinfecting your well system.

Step 2: Disconnect or bypass any treatment systems connected to your well system.

If you have a water softener, filtration system, or other water treatment unit, it is best to bypass these systems when disinfecting your well system. Consult the treatment system manufacturer or supplier to find out if bypassing the system is necessary and if so, what the procedures are for bypassing the system(s).

Step 3: Prepare a solution of bleach and water to pour inside the well casing.

Referring to the table below, mix the recommended amount of regular (unscented) liquid bleach containing sodium hypochlorite with water. Use a clean five-gallon plastic bucket (not metal), adding no more than ½-gallon of bleach per five gallons of solution. Mix several batches of solution if more than ½ gallon of bleach is required.

NOTE: *There are bleach products on the market that do not contain sodium hypochlorite. Make sure you use only regular sodium hypochlorite-based bleach without additives.*

Recommended Amounts of Bleach for Well Disinfection*

Coliform Bacteria			Iron Bacteria	
Total Well Depth (feet)	Cups of Bleach for Treatment	Gallons of Solution to Make (bleach + water)	Cups of Bleach for Shock Treatment	Gallons of Solution to Make (bleach + water)
0 to 50	5	5	10	10
51 to 100	7	5	14	10
101 to 150	10	10	20	20
151 to 200	12	10	24	20
201 to 250	14	10	28	20
251 to 300	16	10	32	20
301 to 350	18	15	36	30

* 1 gallon = 16 cups, amounts are based on standard bleach. Use 25% less if using concentrated "Ultra" bleach.

Step 4: Pour the bleach solution into the well and mix it with the well water.

Remove the well cap and pour the five-gallon bucket(s) of disinfection solution into the well, taking care to pour the solution down all sides of the well. Run a hose from the nearest outside tap to the well. Allow the hose to run on the ground until you smell chlorine, then place the hose into the well casing and rinse the inside of the well with the disinfection solution for at least five minutes.

CAUTION: Never pour pure (concentrated) liquid chlorine bleach directly down your well, the liquid is corrosive and can damage the well system. If you see exposed (uninsulated) wires or connections, or the ground wire is not connected, it is recommended that you have a well service company or electrician inspect the wiring to make sure it is safe prior to disinfecting the well.

Step 5: Fill your distribution system (water lines, fixtures) with the chlorinated well water.

Starting with the fixtures closest to the well, **run water through every tap** in the water system, including all inside and outside faucets, tubs, utility sinks, showers, and toilets, until you smell chlorine. Include both hot and cold taps in this process. Let the chlorinated water sit in the lines for 12 to 24 hours.

CAUTION: Do not use the chlorinated water for pets, household plants, bathing, or clothes washing. It is important to run the chlorinated water through all lines in the household water system. Leaving even one line out of the procedure can allow contamination to remain.

Step 6: Flush the well system of chlorine solution.

After 12 to 24 hours flush your well and distribution system. **Starting with the outside taps**, run water until you can no longer smell chlorine. Discharge the used chlorinated water in a safe place outside, avoiding lawn areas and other areas where the solution may kill plants. After draining the outside taps and flushing the chlorine from the well casing, flush the inside taps and fixtures. The smaller amounts of chlorinated water left in the inside lines and fixtures should not hurt your septic system. **NEVER discharge the chlorinated water into streams, ditches, lakes, or ponds!**

Step 7: Retest your well for coliform bacteria. After using the well for about 5 days submit a water sample to an approved laboratory for total coliform bacteria analysis to confirm that disinfection has been complete and that the water is suitable for drinking. Prior to retesting consider drinking bottled water in case the well water is still contaminated. In severe cases or if the above procedures are not followed carefully, your well water may continue to show bacterial contamination. If this occurs carefully repeat these procedures and re-test the water again.

If problems persist, call Gallatin Local Water Quality District at 582-3168 for assistance.

Gallatin Local Water Quality District
215 W. Mendenhall, Suite 300
Bozeman, MT 59715
www.gallatin.mt.gov/glwq