

Guide for Well Owners

Private Well Maintenance and Water Testing in Calvert County



Know Your Well

Cap - Well caps can come in many different shapes and colors. They can be made of metal or plastic. They should have bolts to attach the top section of the cap to the bottom. The bottom of the cap should be firmly affixed to the well casing. There should be a seal between the two sections. There should be a location for the conduit to be attached and a screened vent hole (see interior view and inspection checklist below).



Casing - The casing can be steel or plastic. You should see no holes through the casing and the cap should be securely attached to the casing. It should be at least 8" above grade.

Well Tag - A metal tag should be attached to the casing. The tag identifies the permit number for the well. The format is CE-##-####. The permit number can be used to find out the depth of the well and other data recorded by the driller during construction.

Conduit - This is how the electric wires enter into the well for your pump. This needs to be securely attached to the well cap. There should be no gaps between the cap and the conduit. The conduit should be installed so that it penetrates into the ground at least 12" and the bottom sealed.

The ground immediately around the well should be graded to prevent water from pooling at the base of the casing.

Inspect your well to make sure of the following features:

- Two-piece cap tightly secured with screws, bolts, etc.
- Rubber seal between the two pieces of well cap.
- Vented screen — feel under cap to ensure any holes are screened.
- Electrical wiring entering the well through a properly sealed conduit. — no gaps should exist between the cap and the conduit.
- The rope for your well pump should not exit through the well cap.

Well Cap Interior



Well Owner's Checklist

Private water supply systems require routine maintenance. These steps will help protect your system and investment:



- Always use licensed well drillers and pump installers to build wells, install pumps and service the system.
- An annual well maintenance check, including a bacterial test, is recommended. Drinking water should be tested any time there is a change in taste, odor or appearance or when the well system is serviced.
- Keep hazardous chemicals, such as paint, fertilizer, pesticides and motor oil at least 30 feet away from your well.
- Periodically check the well cap to ensure it is in good repair. Look for signs of aging or cracking and/or the presence of insects inside the well head. Have the well cap replaced if any of these characteristics are observed.
- Always maintain proper separation between your well and buildings, septic systems or chemical storage facilities.
- When mixing pesticides, fertilizers or other chemicals, do not put the hose inside the tank or container as this can allow back-siphonage to occur.
- When landscaping, keep the top of your well at least eight inches above the ground. Slope the ground away from your well for proper drainage. If you are located in the floodplain, your well casing must be at least two feet above grade and have a specially designed flood-proof cap.
- Take care in working or mowing around your well. A damaged casing or conduit could jeopardize your water supply.
- Do not pile snow, leaves or other materials around your well.
- Keep your well records in a safe place. These include the construction report as well as the annual water well system maintenance and water testing results.
- When your well has come to the end of its serviceable life (usually 30+ years), have a licensed well driller abandon and seal the existing well after the new well is connected.

Well Water Disinfection for Private Wells

Please read this entire procedure prior to beginning the well disinfection process. If you are not familiar with working around electricity or are uncomfortable with this process it is highly recommended that you contract with a licensed plumber or well driller to disinfect your well and water lines. **If you have a water treatment system or automatic ice/water dispensing unit, it will be necessary to separately disinfect these devices as they may be damaged by excessive amounts of chlorine.** Follow the manufacturer's instructions for disinfection of your unit(s).

When Should a Well be Disinfected?

- When water testing indicates the presence of bacteria.
- When flooding has occurred near the well head.
- After installing/repairing plumbing lines or fixtures or when any repairs are made to the well/well pump.
- When iron or sulfur bacteria reduce the capacity of your water supply or cause taste/odor problems.
- During start-up of seasonal wells or when the system has been inactive, drained, or opened.

Chlorination Procedure

The following procedure is for a well that has a submersible pump with either a removable well cap or a well seal with a threaded plug in it:

1. Isolate critical water system components (water treatment systems, ice maker, etc.).
2. Turn off and drain the water heater.
3. Fill jugs/buckets with water for non-potable uses (flushing toilets, etc.)
4. Turn off electrical power to the pump by turning off the circuit breaker or unscrewing the fuse.
5. **Do not turn the power back on until the chlorine solution has been placed into the well.** Mix the appropriate chlorine solution for the diameter & depth of your well. A new bottle of unscented household bleach (sodium hypochlorite) containing 3 - 5 percent available chlorine should be used. See chart below:

		Well Depth (Feet)					
		20-100	100-149'	150-199	200-249	250-299	300-349
Well Diameter (inches)	4"	2 Cups	3 Cups	4 Cups	5 Cups	6 Cups	7 Cups
	6"	1 Quart	1.5 Qts	2.5 Qts	3.5 Qts	4.5 Qts	5.5 Qts

Note: Using more than the recommended amount of chlorine can corrode your pump.

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Well Water Disinfection for Private Wells, continued

6. Mix the bleach in a clean bucket with at least one gallon of water using caution as the mixture is highly corrosive. **Avoid skin and eye contact by wearing rubber gloves and protective goggles or a face shield.**
7. Remove the well cap, placing well components onto a clean surface, & gently lift the wires/wire nuts out and pull them to the side. Do not pull on the release cable or pull the pipe for the pitless adapter and pump. Check for damaged wires/wire nuts.
8. Pour the chlorine solution into the well, washing down the interior well casing, pump support rope, and well cap.
9. Turn on the power to the pump & use a garden hose to run the water out of the house in an area away from the well for approximately 10 minutes until the water runs clear.
10. Once the water becomes clear and you begin to smell chlorine in the water coming from the hose, place the hose into the top of the well casing & re-circulate the water into the well for about 30 minutes.
11. Turn off the power to the pump. Remove the hose. Replace the existing cap with a insect-proof well cap ensuring there are no gaps between the cap, casing and conduit line.
12. Turn on the power to the pump. Remove aerators from all faucets as clogging may occur from precipitated iron or loosened scale.
13. Turn on **EVERY** hot and cold faucet, including toilets, showers, tubs, outside hose bibs, and water pressure tank. Run water at each location until you smell chlorine at each one.
14. Turn the water off. **Do not use the water for at least 12 hours, preferably longer.** This allows contact time for the chlorine to kill bacteria that may be present.
15. After the recommended contact time, use a garden hose from an outside faucet to flush the chlorine out of the system. **Direct the chlorinated water away from the septic area and do not run it into any bodies of water.** This process could take several days until all of the chlorine has been removed. (Note: If you do not smell chlorine in the water coming out of the hose, you should restart this entire process. All available chlorine was used before disinfection was complete.)
16. Once the chlorine is removed from the well, open each faucet one at a time until the chlorine smell is no longer present to purge the remaining chlorine from the water system. It may take longer to remove the chlorine from the hot water lines; therefore, it may be quicker to drain the water heater again.
17. Re-connect water treatment systems, dishwasher, etc. after proper disinfection for each unit has been completed.
18. Do not use the water for drinking, cooking, or food preparation until the water tests free of coliform bacteria. Two consecutive water tests, at least a week apart, are recommended to ensure there is no re-growth occurring.



CALVERT COUNTY
HEALTH
DEPARTMENT

More Resources for Well Owners

For free training and education

Rural Community Assistance Partnership

www.privatewellclass.org

For easy-to understand water quality information

National Ground Water Association

www.wellowner.org

For water treatment fact sheets and homeowner helpline

National Environmental Services Center

tinyurl.com/NESCWells

For general information

U.S. Centers for Disease Control

tinyurl.com/CDCprivatewells

U.S. Environmental Protection Agency

www.epa.gov/privatewells