

Disinfecting a Domestic Well with Shock Chlorination

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Shock chlorination is a disinfection treatment recommended when a domestic drinking water system is contaminated with bacteria. Contamination can occur when the well is installed or when repairs are made to the pump or plumbing. Shock chlorination should take care of contamination that is introduced during these activities.

If the groundwater itself is the source of bacteria, the system will be contaminated again when that water is pumped into the plumbing. In that case, continuous chlorination or other disinfection methods will be necessary to ensure the safety of the water supply.

Shock 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 faucets and toilets will not be in use for at least 8 hours, preferably 12 to 24 hours.

Shock chlorination will be most effective if the chlorine reaches every part of the water system. Special precautions are needed on automatic water systems for animals and irrigation. Provide alternate water sources for pets or livestock who depend on automatic waterers, then make sure the chlorine reaches those outlets. Chlorinated water flushed out of a sprinkler or drip system should be directed away from landscaping plants and lawn areas to avoid damage to the plants.

Most water treatment equipment (such as water heaters, softeners, and pressure tanks), should also be disinfected. Some water filters, such as carbon filters, should be temporarily disconnected or by-passed during shock chlorination. Check owner's manuals or manufacturers' literature before shock chlorinating to avoid damage to components.

Use liquid household bleach containing 5.25% chlorine for the disinfection process. Do not use bleach with a "fresh scent," lemon fragrance, or other cleaners added. One gallon of bleach will treat up to an 8-inch diameter well containing 100 feet of water.

If your well is much larger, or if your distribution system is unusually large, expect to use more than 1 gallon of bleach.

Avoid direct skin contact with bleach solutions. Wear rubber gloves, goggles, and a chemical-resistant apron when handling bleach. If it accidentally gets on your skin, flush immediately with clean water. Never mix chlorine bleach with other cleaners; it may produce a toxic gas.

Disinfection Procedure

- Mix 2 quarts bleach in 10 gallons of water; pour into well.
- Connect a garden hose to a nearby faucet and wash down the inside of the well.
- Open each faucet and let the water run until a strong chlorine odor is detected, then turn it off and go to the next one. Don't forget outdoor faucets and hydrants. Drain the water heater and let it refill with chlorinated water. If a strong odor is not detected at all outlets, add more chlorine to the well.¹
- Flush the toilets.
- Mix an additional 2 quarts bleach in 10 gallons of water. Pour it into the well without pumping.
- Allow chlorinated water to stand in the well and pipes for at least 8 hours (preferably 12 to 24 hours).
- Run water from outdoor faucets to waste (away from desirable vegetation) until the chlorine odor is slight or not detected at each faucet. Then run indoor faucets until there is no chlorine odor. Minimize the amount of chlorinated water flowing into a septic tank.

¹ If you have an impaired sense of smell, use chlorine test strips sold with swimming pool supplies to detect chlorine at each outlet.

Some chlorine may persist in the system for 7–10 days. Water with a slight chlorine smell should be usable for most purposes. If the odor or taste is objectionable, simply let the water run until the chlorine dissipates.

Approximately 2 weeks after flushing the system, sample the water (according to laboratory instructions) and have it tested for biological contamination. Repeat the test in 2 to 3 months to be sure the system has not been recontaminated.

If water tests show that biological contamination has reappeared or persisted, try to locate and remove the source of bacteria. Human and animal wastes are common causes of bacterial contamination, so a nearby septic system or livestock pen could be the source.

If the follow-up water test shows no bacterial contamination, you should still test your water once a year. If there is a change in the taste or smell of your water, or if there are unexplained illnesses in the

household, test the water as soon as you notice the change.

More information about domestic drinking water wells is available in New Mexico Farm-A-Syst (Farmstead Assessment System). For more information, contact your County Extension office.

References

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