ER-004
10/05

Texas Cooperative EXTENSION
The Texas A&M University System

Disinfecting Water Wells by Shock Chlorination

Mark L. McFarland, Associate Professor and Extension Soil Fertility Specialist

Monty C. Dozier, Assistant Professor and Extension Specialist — Water Resources, The Texas A&M University System

R. Craig Runyan, Program Coordinator, Extension Plant Sciences Department, New Mexico State University

If your well has been flooded, it will need to be shock chlorinated before you can use it as a drinking water source. During the disinfection process, water from the system is not suitable for consumption and neither people nor animals should have prolonged contact with it. Make the treatment when faucets and toilets will not be in use for at least 12 hours, preferably 24 hours. If there is an automatic watering system for animals and irrigation, provide an alternate water source during the treatment period. Most water treatment equipment (such as water heaters, softeners and pressure tanks) should also be isinfected. Drinking water filters, such as carbon filters and reverse osmosis systems, should be temporarily disconnected or by-passed during shock chlorination.

The two most common sources of chlorine for well disinfection are dry chlorine (65 percent calcium hypochlorite) and liquid household bleach (5.25 percent sodium hypochlorite). Do not use bleach with a “fresh scent,” lemon fragrance or other additives.

Chlorination Procedure

The amount of chlorine needed is determined by the amount of water standing in the well. The standing water depth in the well is the well depth minus the static water level. If the standing water depth of the water in the well is unknown, use a volume of bleach equal to two times the depth value for the ppropriate casing diameter. For example, an 8-inch casing diameter with unknown standing water depth would require 3 gallons of household bleach.

1. First, drain as much water from the system as possible. If the system has a pressure tank that contains a bladder, the rubber air-water separator in the tank may be damaged by the chlorine solution. Check your manufacturer’s guide to see if the pressure tank should be by-passed. If the pressure tank has no bladder, release the air to allow the tank to be filled with chlorinated water. Drain all hot water heaters to allow chlorinated water to circulate through the hot water system.

2. Remove the plug or screen on the well cap to access the inside well casing. Dilute the beach by placing the appropriate amount of bleach (see Table 1or 2) in a 5-gallon bucket and filling the bucket with clean water. Use a funnel to pour the solution around the sides of the well casing.

3. Connect a garden hose to a nearby faucet and wash down the inside of the well. Continue the washing process for 10 minutes and make sure a strong chlorine smell can be detected. Then, do not operate the water system for 2 hours.

4. After 2 hours, open the faucet closest to your well, allow water to run until a strong odor of chlorine is detected, then close the faucet. Proceed to the next faucet and repeat. If the odor is not detected, check the rate of chlorine and add more chlorine to the well, repeating steps one through four. Then, do not operate the water system for at least 12 hours, preferably 24 hours.

5. Next, flush the system of remaining chlorine. Begin by turning on outside faucets and letting the water run until the chlorine smell dissipates. Let the water run on the ground to reduce the load on your septic system. But do not let the chlorinated water run onto lawns, gardens or other plants because chlorine can injure them. Place the garden hose so that it drains into a field or low-lying area away from desirable plants. Be careful not to discharge the chlorinated water directly into ponds, lakes, rivers or streams.

6. Finally, turn on the indoor faucets until the system is completely flushed.

7. After chlorination, have the well water tested again for bacterial contamination. If bacteria are still detected in the well water, repeat the chlorination process and then test the water again.

8. If bacterial contamination is detected a third time, check for potential sources of reinfection such as an improperly designed wellhead, or livestock pens or septic tanks near the wellhead. It might be necessary to install a continuous chlorination system or other continuous disinfection system.

Table 1. Amount of chlorine bleach needed for shock chlorination.

	Laundry bleach (about 5.25% hypochlorite)				
Standing water depth in well (in feet) 12 inches	Casing diameter 4 inches	6 inches	8 inches	10 inches	
10	½ cup	1 cup	1½ cups	1 pint	2 pints
25	1 cup	1 pint	2 pints	3 pints	4½ pints
50	1 pint	1 quart	2 quarts	3 quarts	1 gallon
100	1 quart	2 quarts	1 gallon	1½ gallons	2 gallons
150	3 pints	3 quarts	1½ gallons	2 gallons	3 gallons

Table 2. Amount of dry chlorine needed for shock chlorination.					
	High-test hypochlorite (HTH 65-75% hypochlorite)				
Standing water depth in well (in feet) 12 inches	Casing diameter 4 inches	6 inches	8 inches	10 inches	
10	-	-	-	-	-
25	-	-	-	1/4 lb.	1/4 lb.
50	-	-	1/3 lb.	½ lb.	3/4 lb.
100	-	1/3 lb.	3/4 lb.	1 lb.	1½ lbs.
150	1/4 lb.	½ lb.	1 lb.	1½ lb.	4 lbs.

Information in this publication came from University of Nebraska publication G95-1255A, Auburn University publication ANR-790, Texas Natural Resource Conservation Commission publication GI-005, and other sources. For additional information visit: *http://soilcrop.tamu.edu* or *http://water.tamu.edu*

Produced by Agricultural Communications, The Texas A&M University System

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas Cooperative Extension, The Texas A&M University System.