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FACT SHEET:

COLIFORM BACTERIA

Coliform Bacteria: Bacteria are generally found in all natural water whether from surface or shallow ground sources. Most of these bacteria are essential to the breakdown of natural organic materials found in water, and are harmless to humans. However, presence of coliform bacteria (from human or animal waste) in the water supply shows possible pollution that cause human illness and disease. Since disease causing bacteria are difficult, expensive, and time consuming to isolate and identify, microbiologists have developed the "total coliform test" to simplify sampling. Coliform bacteria can survive longer in water than most disease causing organisms, and are easier to identify. Safe water contains no total coliform bacteria. Microbiologists use one of several methods to determine the presence of coliform bacteria. Results are reported as coliform “present” or “absent”. Construction and maintenance work (e.g. pump replacement in an existing well) can temporarily contaminate water with coliform bacteria. Soil, vegetation, and maintenance crew activities/tools could also introduce bacteria into the well. Flooding in the vicinity of a well may also result in contamination. After maintenance activities, or significant flooding in your area (and before using well water), please disinfect, entirely flush the system, and then sample test for coliform bacteria.

How to Disinfect a Well: The general method involves three steps. Full details of the process below:

1. First Calculate Amount of Water (i.e. gallons) in a Well: To obtain this information, you must know the well casing diameter (in inches), and the total depth of the well (in feet). Table 1 below converts well casing diameter to gal. of water per feet of well depth.

Table 1: Converting Well Casing Diameter into Gal. of Water/ft Well Water Depth:

Well Casing Diameter (inches)	Gal. of Water per Feet of Well Depth
4	0.65
6	1.50
8	2.60
10	4.10
12	5.90
14	8.00

2. Adding Correct Amount of Bleach: After determining well water depth in gal. per feet of well depth, you should add 2 cups (i.e. 16 ounces) of normal household bleach (containing 5% sodium hypochlorite) for every 100 gallons of well water. You should add the bleach to 4-5 gallons of water before pouring it into the well as part of the disinfection process. Below is a problem example and calculation of well water depth (in gal. per feet), and the correct amount of bleach to be added:

Example: I have a 6-inch diameter well casing that contains 65 feet of water. How much normal household bleach do I need to add in order to disinfect my well?

Answer: Based on Table 1, with a 6-inch diameter well casing, there are 1.5 gal. of water per feet of water depth. To get the number of gallons in a well, multiply the total water depth (i.e. 65 feet) and the number of gallons of water per feet of well depth (i.e. (65 gal./ft). Therefore,

Gal. of well water = Total water depth * Number of gal. of water per feet of well depth

i.e. 65 ft * 1.5 gal./ft = **97.5 gal. water**

Since 97.5 gallons is about 100 gallons, add 2 cups of normal household (5%) bleach to the well to disinfect the well.

3. Disinfection Process: Includes sample testing, and repeating the disinfection process as necessary.

   a. Add bleach to 4-5 gallons of water, mix together, and pour into well. Pour through a plug or casing vent hole at the top of the sanitary seal.
   b. Be sure bleach mixes thoroughly with the well water. Attach a hose from pump (or service line), and run water into the well. Run water through the same hole at the top of the sanitary seal that was used to add the bleach.
   c. After 15-20 minutes, open each faucet or plumbing fixture served by the well until you can detect a bleach smell in the water. When able to detect bleach smell, then close the valves. Let the bleach stand in the well and piping for at least 8 hours.
   d. Now thoroughly flush the system!: See Warning* below.
   e. Sample test for total coliform. A good sample test location is a bathroom faucet with the aerator removed. Wait until lab results are negative for total coliform before using the water.

   Please remember that it is difficult to entirely flush a large system. Any well of concern should always be isolated, disinfected, flushed and sampled for total coliform. If total coliform samples are positive, repeat the disinfection process until sample tests are negative. The repeat procedure must be followed in sequence: disinfect, flush all bleach, and wait for negative sample results before resuming uses of the water. Schedule maintenance in advance so there is adequate time to disinfect, and to make certain that water is safe for use.

***Warning:** Bleach used in this disinfection process must be flushed thoroughly from all service lines. This is a disinfection flushing procedure only, and should not to be used on a regular basis. Bleach contains chlorine, and is harmful to organisms living in water and soil. Human exposure to strong bleach solutions and chlorine may cause severe irritation to eyes and skin, and are harmful if swallowed. Please use appropriate protection and precautions when handling bleach.