

New and Contaminated Wells

By Darrel Lockard

I found these directions for disinfecting wells and was surprised at the procedure, not everything you find online is correct or easy to decipher. The site I found this on is one that an Operator would think correct. I tried to do the math for their formula but found it difficult and confusing. Most operators have their preference as to use calcium or sodium hypochlorite since gas is usually not used in disinfecting the well itself. Some of the steps do make sense but others do not or are not up to the industry standards. I will add a few more thoughts and notes below.

This is what I found online.

New wells and wells that are bacteriologically contaminated should be disinfecting according to the following steps:

1. Determine the amount of chlorine solution (prepared in step 2) needed to displace the entire volume of water standing in the well according to the following:

- 2" casing diameter: prepare two gallons of chlorine solution per ten feet of well depth
- 4" casing diameter: prepare seven gallons of chlorine solution per ten feet of well depth
- 6" casing diameter: prepare 15 gallons of chlorine solution per ten feet of well depth
- 8" casing diameter: prepare 26 gallons of chlorine solution per ten feet of well depth

2. To prepare the chlorine solution, mix one unit volume of household laundry bleach with 100 units of water. Be sure to use pure bleach without additives, like "fresh scent". For example, mix one gallon of bleach with 100 gallons of water. Prepare enough solution to meet or exceed the total volume of your well. Mixing can be done 25 gallons at a time in a new garbage can. Note: Never

use (even new) garbage cans to store drinking water.

3. Remove the cap from the well and pour the entire bleach and water mixture into the well in one continuous, fast pour.

4. Rinse down the sides of the well casing with a garden hose for 5-10 minutes. Make sure the hose is connected to the system being chlorinated. This procedure circulates the chlorine solution throughout the water system to insure total disinfection.

5. To disinfect your plumbing system, you can turn on each of your water taps until the bleach smell is just detected and then turn them off. You should turn off the heating element in your water heater to save energy during this process. The water softener should be bypassed after allowing a low concentration of chlorine to pass through it.

6. Let the chlorine solution remain in the system for at least 12 hours, but preferably 24.

7. Pump all of the chlorine solution out of the well by attaching a garden hose and running the water to an area where the chlorine will do no damage. Remember that chlorine can kill grass and fish. Do not dump the spent chlorine solution into your private septic system and check with your municipality before dumping into any public sewer system. Pump until you can no longer detect the chlorine smell. If necessary, follow this procedure for your plumbing system by running each of the cold water taps.

8. The well should be re-sampled only after all traces of chlorine have been flushed from the system.

More thoughts and notes:

Step 1: If you want a mind-twister to find the PPM for the formula above, then all I can say is have fun! Since most of you I have met over the years you tell me to keep it simple; this is far from it.

Step 2: The item that sticks out to me is the lack of an NSF product. As operators we are not allowed to put just household bleach in our drinking water, although it did mention not to use scented.

Step 3: Is simple, to the point and easy to follow.

Step 4: Would make sense but be careful not to create a cross connection to the drinking water supply.

Step 5: You should always use an analyzer to determine residual doses and to use your nose or tasting is not to testing standards, and after super chlorinating the MCL is 4 PPM

Step 6: According to the Ken Kerri 4th Edition “Small Water System Operation and Maintenance” a new well should be dosed at 50 ppm with a 24-hour contact time. Additionally, see AWWA standards C651-C654 and OAR Chapter 333, Division 061-OAR333-061-0050, (10) (C) Disinfection of facilities.

These were just a few things that caught my attention while reading the procedure.