

WHEN SHOULD I DISINFECT A WATER SYSTEM OR WELL?

Disinfection is only effective against disease organisms that come in contact with the disinfectant solution for a sufficient amount of contact time. **Disinfection will not remove chemical contamination.**

Water Systems Subject to Power Outages: A water system that relies on well pump(s) or booster pump(s) that does not have a back-up source of power (generators), will lose water pressure and subsequently could allow dirty outside water to enter the water lines and contaminate the water system.

Water Systems or Wells Contaminated with Bacteria:

- **Fecal Coliform or E-coli Bacteria:** If a bacteriological water test shows the presence of fecal coliform or E-coli bacteria in the water system, this is an indication that the water system is open to contamination by animals and/or has sewage entering the water system. The presence of fecal coliform or E-coli bacteria (fecal positive test result) is a health emergency and you should not drink the water.
- **Total Coliform Bacteria:** If a bacteriological water test shows the presence of total coliform bacteria in your water system, this indicates that contaminants have entered the well or water piping system. The presence of total coliform is an indication that the water system is not adequately protected from contamination. The presence of total coliform bacteria (total positive test result) without the presence of fecal coliform or E-coli bacteria (fecal negative test result) is not a health emergency and you can continue to drink the water.

CAN I DISINFECT A CONTAMINATED WATER SYSTEM OR WELL MYSELF?

You can disinfect your contaminated water system or well if you are careful, have a few basic tools and have some household bleach solution. Any ordinary liquid household bleach can be used if it contains 5.25 percent sodium hypochlorite and is unscented. The most important thing to remember is don't do anything to make the problem worse such as dropping a wrench, bolt, or dirt into the well, or disconnecting the well pump and losing it down the well.

HOW DO I DISINFECT A WATER SYSTEM OR WELL?

The following are provided as suggestions only (Note: specific circumstances or safety concerns may require actions that are not covered in the following):

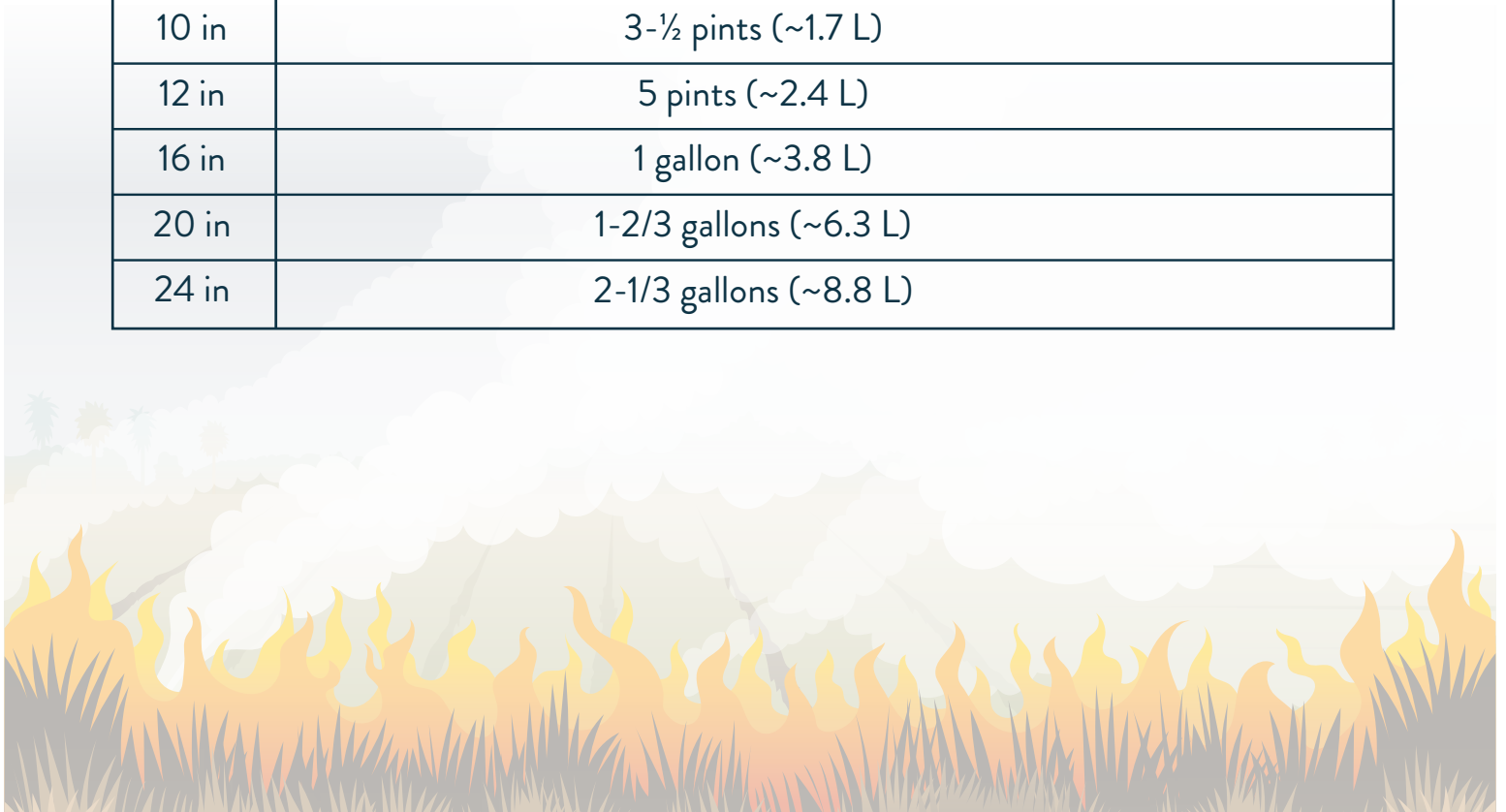
1. Pump water from the well until it looks relatively clean.
2. After the water flowing from the well looks clear, stop the pump.
3. The bleach may now be added to the well. It may be necessary to lift the pump, but some wells have openings that can be used for this purpose. Bleach should be added between the casing and suction pipe of the pump. See the table below for the amount of bleach that should be used.
4. Do not operate the pump for 30 minutes. After the 30-minute period, surge the well by starting and stopping the pump several times.

5. Next, open every tap, faucet or hydrant in the water piping system, start the pump, and let water flow until clean water with a strong smell of chlorine comes out of each tap.
 6. Stop the pump and close all taps, faucets and hydrants. Do not operate the pump for 24 hours.
 7. After the 24-hour period, open all taps, faucets and hydrants, start the pump and pump water until all the chlorine odor is gone. Stop the pump and close all taps, faucets and hydrants. The water should now be ready for use as drinking water and for cooking.
- Bacteriological testing should be conducted to determine the effectiveness of the disinfection procedure.

HOW MUCH DISINFECTANT SHOULD I USE?

The amount of chlorine disinfectant required depends on the size and depth of the well and the type of disinfectant available for use (note: household bleach is usually 5% available chlorine).

QUANTITY OF CHLORINE COMPOUND REQUIRED TO DISINFECT A 100 FT DEEP WELL (OR LENGTH OF PIPE) AT 50 PARTS PER MILLION (PPM)	
Diameter of pipe or casing	CHLORINE COMPOUND (BLEACH)
	5.25% Available Chlorine (household bleach – sodium hypochlorite) liquid
2 in	2 ounces (~60 ml)
4 in	9 ounces (~270 ml)
6 in	20 ounces (~600 ml)
8 in	2-1/8 pints (~1.0 L)
10 in	3-1/2 pints (~1.7 L)
12 in	5 pints (~2.4 L)
16 in	1 gallon (~3.8 L)
20 in	1-2/3 gallons (~6.3 L)
24 in	2-1/3 gallons (~8.8 L)



For wells with depths of 100 to 200 feet, use twice (2x) as much bleach as listed above. For wells with 6-10 inches in diameter with an unknown depth, use a full gallon of 5.25% bleach. Using a little more bleach is better than not using enough.

CHLORINE BLEACH DILUTION FOR DISINFECTING LARGE VOLUMES OF WATER – VALUES IN PARTS PER MILLION (PPM)					
Amount of water to be treated (gal)	CHLORINE COMPOUND (BLEACH)				
	5.25% Available Chlorine (household bleach – sodium hypochlorite) liquid				
	1 ppm	5 ppm	25 ppm	50 ppm	100 ppm
50	1 tsp	1 oz	3.5 oz	6.5 oz	13 oz
100	2 tsp	2 oz	6.5 oz	13 oz	26 oz
200	1 Tbl	3 oz	13 oz	26 oz	1 qt
500	1.5 oz	6.5 oz	1 qt	2 qt	1 gal
1,000	3 oz	13 oz	2 qt	1 gal	2 gal
2,000	6 oz	26 oz	1 gal	2 gal	4 gal
5,000	13 oz	2 qt	2.5 gal	5 gal	10 gal
10,000	26 oz	1 gal	5 gal	10 gal	20gal
25,000	2 qt	2.5 gal	12.5gal	25 gal	50 gal
50,000	1 gal	5 gal	25 gal	50 gal	100 gal

The source of the data for the above tables is from the CEHA “Disaster Field Manual”

If you require additional information, or have a particular problem, please contact us via e-mail at EH@kerncounty.com or via phone at (661) 862-8740.

Grounded in Health

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