

WATER WELL DISINFECTION



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This advisory is designed for the treatment of wells under emergency conditions with limited equipment. Do not over treat wells with excessive chlorine. Be sure to leave the chlorine solution in the well for at least 6 hours. Any circulation of the chlorinated water in the wellbore or well hole will improve disinfection.

1. Disconnect the well from any water distribution system.
2. Begin pumping the well to flush the salt water and any debris from the well.
3. While the well is pumping, clean up any debris from around the well. Remove any standing water and taper the soil away from the well head so that surface water drains away from the well.

The well will have to be pumped from one to three hours to remove the salt water. This can be checked by a conductivity meter (Ocean water will average 30,000 to 50,000 micro siemens). If a meter is not available, dip your finger in and taste the water. A salty taste indicates the need for continued pumping. If it is likely the water is contaminated, treat a glass of clear water with five drops of hypochlorite solution (5% liquid bleach) and wait several minutes. Then dip your finger in the water and taste to see whether all the flood water has been removed. If the pumped water is not clear, continue pumping until clear and free of sea water.

4. Pump some of the clear water from the well into a drum or tank (50 gallons or 200 Liters). Put a spigot near the bottom of the drum so a hose can be attached.
5. Add the amount of liquid bleach or cups (250mls) of powdered calcium hypochlorite indicated in the chart below and mix. Pump or siphon the hypochlorite mix into the well. A longer hose allows a deeper placement of the disinfectant solution. After removal of the hose, the pump can be momentarily used to allow the water to rise and fall back into the well. This should be done several times to mix the chlorine solution throughout the well. Let the well set for 6 hours or overnight, then pump the well and dispose of the pumped water until no chlorine is detected.

Smaller Diameter Wells / 1 cup = approximately 0.25 kilograms

Approximate Dosage per Well Diameter and Water Depth in Liters of Liquid Hypochlorite or Cups of Powdered Hypochlorite											
Approximate Depth of Water		Diameter 4" or 10 cm		Diameter 6" or 15 cm		Diameter 8" or 20 cm		Diameter 10" or 25 cm		Diameter 12" or 30 cm	
Meters	Feet	Liters	Cups	Liters	Cups	Liters	Cups	Liters	Cups	Liters	Cups
6	20	1	.5	2.5	1	3	1	4.5	1.5	7	2
12	40	2	.5	4.5	1.5	6	2	9	3	13.5	4.5
18	60	3	1	7	2.5	9	3	13.5	4.5	20	6.5
24	80	4	1.5	9	3	12	4	18.5	6	27	8.5
30	100	5	1.5	11.5	3.5	15	5	23	7	33.5	10.5
46	150	7.5	2.5	17.5	5.5	23	7	34.5	11	49.5	15.5
61	200	10	3	23	7.5	30	10	45.5	14.5	66.5	21
76	250	12	4	28.5	9	38	12	57	18	83	26

Consideration for wells which require a large amount of hypochlorite:

Wells which require more than 15 liters of liquid hypochlorite should repeat the mixing and addition procedure by preparing a tank of disinfectant for each 15 liters required.

Wells which require more than 15 cups of powdered hypochlorite should repeat the procedure for each 15 cups required. This procedure is necessary to properly place the disinfectant in the borehole and provide for disbursement throughout the well and surrounding formation.

Large diameter wells

Approximate Dosage per Well Diameter and Water Depth in Liters of Liquid Hypochlorite or Kilograms of Powdered Hypochlorite											
Approximate Depth of Water		Diameter 18" or 45cm		Diameter 24" or 60 cm		Diameter 30" or 75 cm		Diameter 36" or 90 cm		Diameter 48" or 120 cm	
Meters	Feet	Liters	Kilo	Liters	Kilo	Liters	Kilo	Liters	Kilo	Liters	Kilo
6	20	15	1.2	27	2.1	42	3.3	60	4.5	108	8.3
12	40	30	2.4	54	4.2	84	6.6	120	9	216	16.5
18	60	45	3.5	81	6.2	126	9.6	182	13.8	323	24.6
24	80	60	4.5	108	8.3	168	12.8	242	18.5	429	32.7
30	100	75	5.7	135	10.2	210	16.1	301	23.1	536	41
46	150	113	8.7	201	15.5	315	24	453	35	804	62
61	200	150	11.6	269	20.4	420	32	603	46	1073	82.5
76	250	188	14.4	336	25.6	525	40	753	57.6	1340	102.3

[1 cup = 0.25 kilogram approximately; 1 20-liter (5 gallon) pail = 20 kilograms approximately]

Consideration for wells which require a large amount of hypochlorite:

Wells which require more than 15 liters of liquid hypochlorite should repeat the mixing and addition procedure by preparing a tank of disinfectant for each 15 liters required.

Wells which require more than 5 kilograms of powdered hypochlorite should repeat the procedure for each 5 kilograms required or dilute the disinfectant at the same ratio in larger tanks if available. This procedure is necessary to properly place the disinfectant in the borehole and provide for disbursement throughout the well and surrounding formation.