green empowerment
Village Solutions for Global Change since 1997

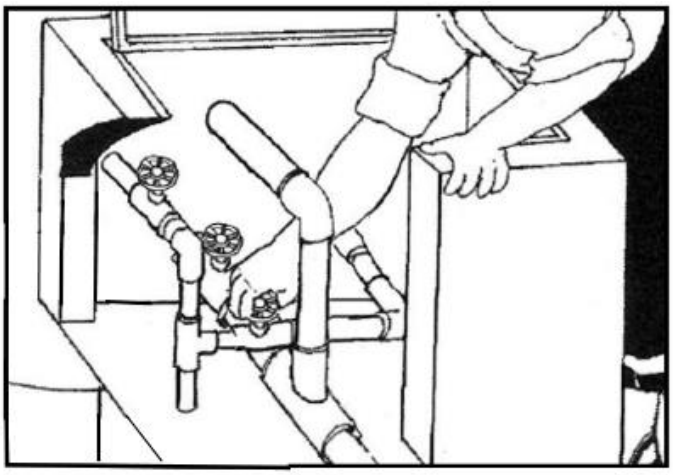
Cleaning and Disinfection of Water Storage Tank and Distribution Network

Note: It is very important to notify the water system users 2 days before cleaning and disinfection that they should not use the water the day of the disinfection. If your system has two water storage tanks, disinfect the tanks at different times to not completely cut off water supply. Also, ensure all equipment is on-hand.

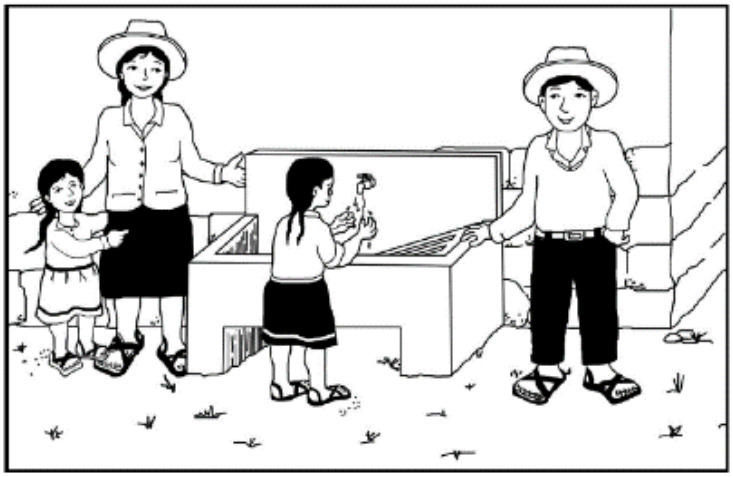
Two days prior to disinfection, make sure you have all of the necessary materials:

- 3-6 People
- Hand Scale
- Mixing Stick
- Ladder
- 3 or more Pairs of Rubber Gloves
- 3 or more Protection Masks
- 2 or more Brooms
- 65%-75% Powdered Chlorine
- Rubber Boots
- 3 or more Protective Glasses
- 3 or more Brushes
- 3 Buckets
- Machete
- Soup spoon

The Night Before

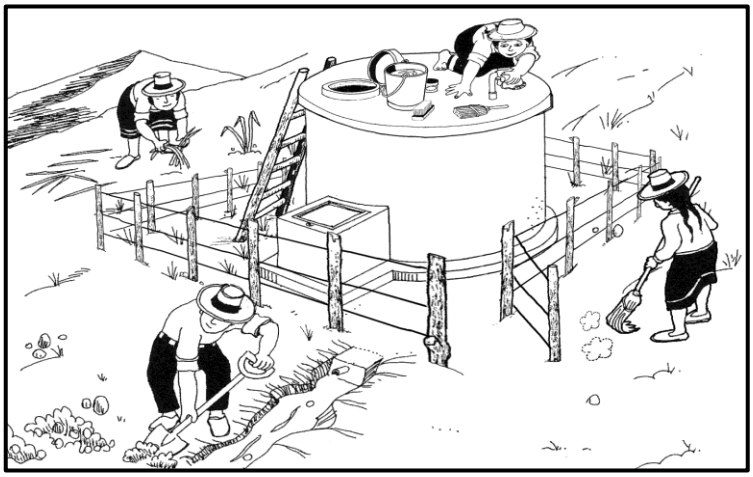


The night before the tank is cleaned, turn off the pump or cut off the water at the tank entrance, allowing the community to use the water to drain the tank.



The day of the cleaning, confirm the community has been notified.

Day 1: External Cleaning (every 3 months)

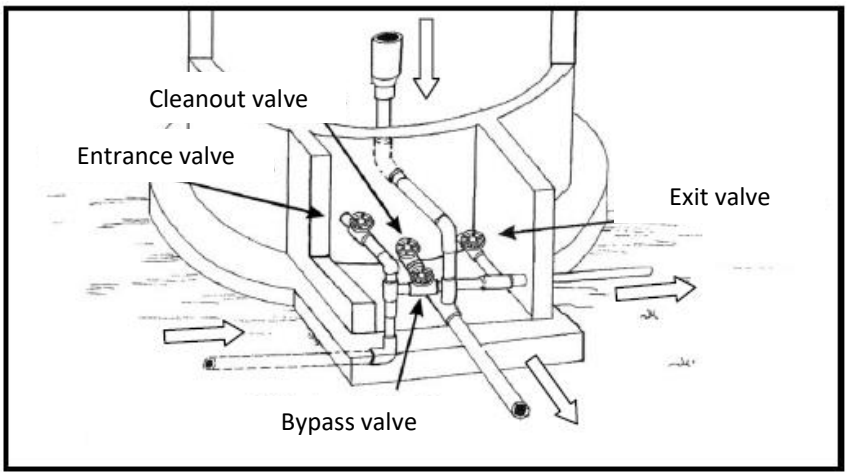


Clean the rocks, undergrowth and dirt from the zone around the tank, including the tank cleanout line or drainage canal.

Remove the sanitary lid of the water storage tank and close the water storage tank inflow and outflow (to distribution network) valves.

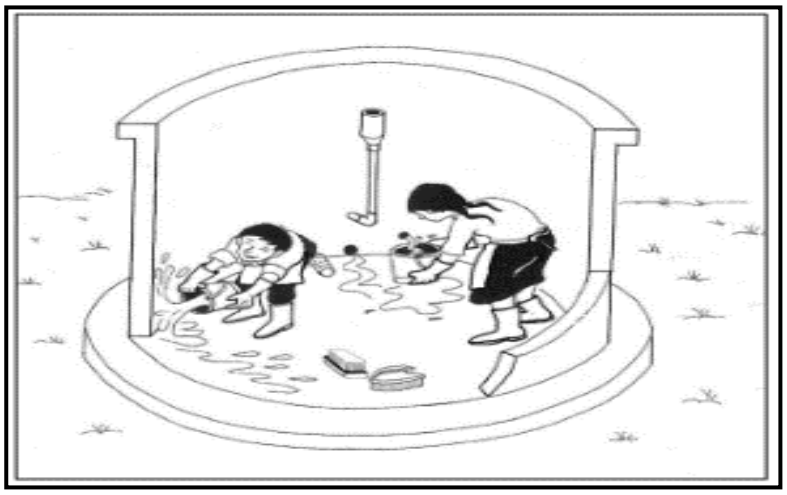
Remove the water in the water storage tank by opening the washout valve.

Clean out the dirt and/or water in the valve box and check the valves for breaks or leaks.



*Every system is different

Day 1: Internal Cleaning (every 3 months)



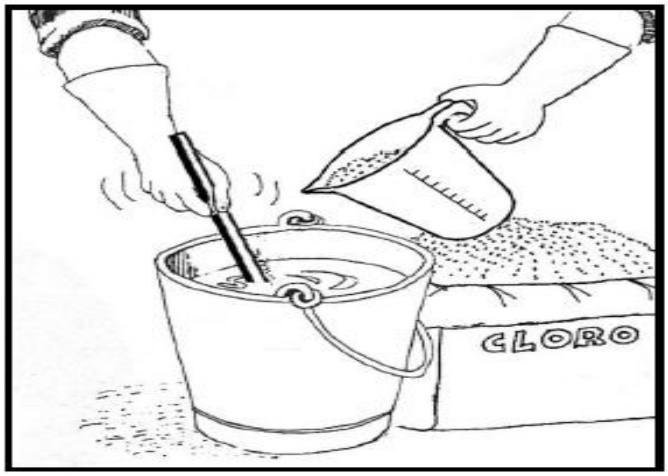
Using a clean broom, remove the dirt from the floor of the water storage tank.

Clean the interior water storage tank walls and accessories with the brooms and brushes. Throw out the dirty water.

Day 1: Tank Disinfection (every 3 months)

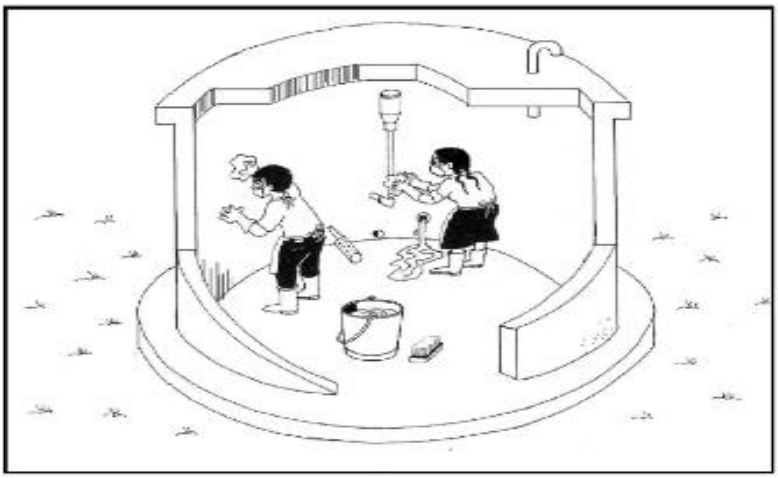
Always use the proper protective equipment when working with chlorine powder or chlorine solution:

- Protective Mask
- Rubber Boots
- Protective Glasses
- Rubber Gloves



Using the powdered chlorine, dissolve 4 tablespoons of powder chlorine in a 20L bucket. More than one bucket of chlorine solution can be prepared if necessary.

With this solution and a brush, scrub the walls, floor, roof, sanitary lid and accessories in the water storage tank. Take turns with who is inside the tank.



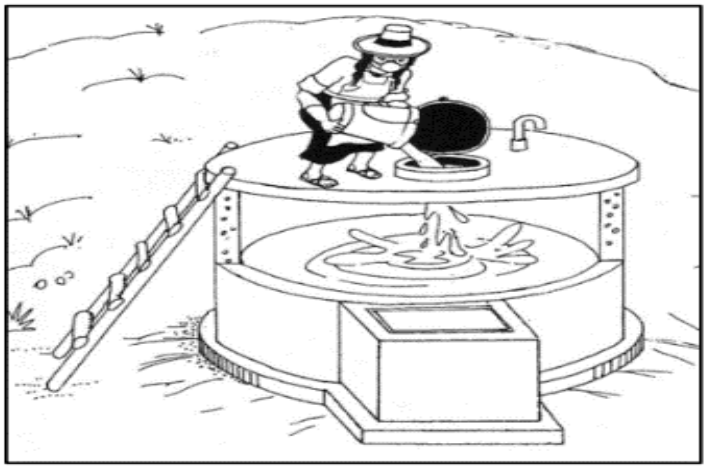
Do not stay in the tank for a prolonged period of time (maximum 10 minutes), since the chlorine produces toxins and can cause suffocation.

Using the buckets, rinse the walls of the tank with fresh water to remove the chlorine.

Refill the tank during the night and the next morning. The time it takes to fill the tank is different for each system.

Day 2: Tank Disinfection (every 3 months)

When the water level in the tank is halfway, prepare the chlorine solution using the appropriate quantity.



Volume of water storage tank: ___

Concentration of Chlorine (provided by vendor)	65%	70%	75%
Weight of Chlorine (kg or lbs)			

Mix in parts (0.5 kg or 1 lb at a time) using a 20 L bucket. Carefully add the solution to the tank little by little.

Finish filling the storage tank with water and leave the solution for 2 hours.

Day 2: Tank Disinfection/Distribution Network Disinfection

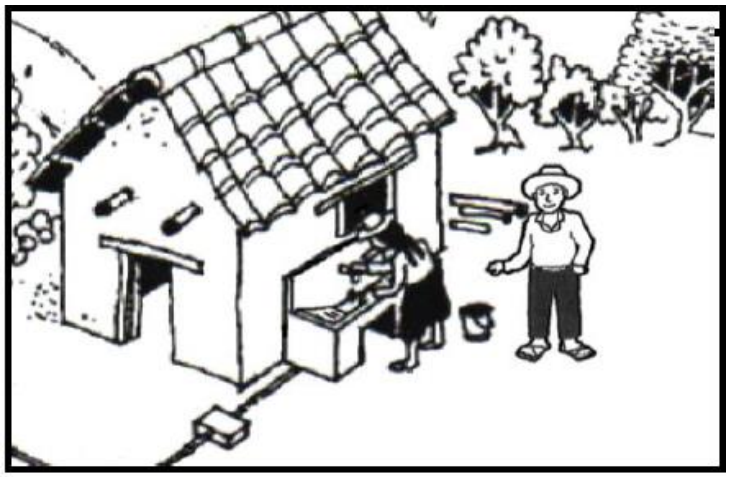
If you are not going to disinfect the distribution network:

2 hours, empty the water storage tank by opening the clean out valve.

If you are going to disinfect the distribution network (every 6 months):

After 2 hours, open the outflow valve to the water distribution network, simultaneously, open faucets in all houses and have each household remove 10 buckets of water. Then close the faucets and place a plastic bag over them to ensure no one drinks the disinfection water.

Day 2: Distribution Network Disinfection (every 6 months)



Let the chlorinated water sit in the distribution network for 4 hours.

After 4 hours, remove the chlorinated water from the water storage tank and distribution system by opening all household/tap stand valves.

Have each household keep their faucets open until no water comes out.

Refill the storage tank with water and continue with normal water service.

Table: Quantity of Chlorine Needed

Volume of Water in the Water Storage Tank (L)	Chlorine Concentration (%)		
	65	70	75
	Weight of Chlorine (lbs)		
10000	1.7	1.57	1.47
11000	1.87	1.73	1.62
12000	2.04	1.89	1.76
13000	2.2	2.05	1.91
14000	2.37	2.2	2.06
15000	2.54	2.36	2.2
16000	2.71	2.52	2.35
17000	2.88	2.68	2.5
18000	3.05	2.83	2.65
19000	3.22	2.99	2.79
20000	3.39	3.15	2.94
21000	3.56	3.31	3.09
22000	3.73	3.46	3.23
23000	3.9	3.62	3.38
24000	4.07	3.78	3.53
25000	4.24	3.94	3.67
26000	4.41	4.09	3.82
27000	4.58	4.25	3.97
28000	4.75	4.41	4.12
29000	4.92	4.57	4.26
30000	5.09	4.72	4.41
31000	5.26	4.88	4.56
32000	5.43	5.04	4.7
33000	5.6	5.2	4.85
34000	5.77	5.35	5
35000	5.94	5.51	5.14
36000	6.11	5.67	5.29
37000	6.27	5.83	5.44
38000	6.44	5.98	5.59
39000	6.61	6.14	5.73
40000	6.78	6.3	5.88

Volume of Water in the Water Storage Tank (L)	Chlorine Concentration (%)		
	65	70	75
	Weight of Chlorine (kg)		
10000	0.77	0.71	0.67
11000	0.85	0.78	0.73
12000	0.93	0.86	0.80
13000	1.00	0.93	0.87
14000	1.08	1.00	0.93
15000	1.15	1.07	1.00
16000	1.23	1.14	1.07
17000	1.31	1.22	1.13
18000	1.38	1.28	1.20
19000	1.46	1.36	1.27
20000	1.54	1.43	1.33
21000	1.61	1.50	1.40
22000	1.69	1.57	1.47
23000	1.77	1.64	1.53
24000	1.85	1.71	1.60
25000	1.92	1.79	1.66
26000	2.00	1.86	1.73
27000	2.08	1.93	1.80
28000	2.15	2.00	1.87
29000	2.23	2.07	1.93
30000	2.31	2.14	2.00
31000	2.39	2.21	2.07
32000	2.46	2.29	2.13
33000	2.54	2.36	2.20
34000	2.62	2.43	2.27
35000	2.69	2.50	2.33
36000	2.77	2.57	2.40
37000	2.84	2.64	2.47
38000	2.92	2.71	2.54
39000	3.00	2.79	2.60
40000	3.08	2.86	2.67

How to Use the Pre-Calculated Tables:

Chlorine Concentration=70%
Volume of water storage tank=15000 L
Weight of chlorine needed: ?

Volume of Water in the Water Storage Tank (L)	Chlorine Concentration (%)		
	65	70	65
	Weight of Chlorine (kg)		
10000	0.77	0.71	0.67
11000	0.85	0.78	0.73
12000	0.93	0.86	0.80
13000	1.00	0.93	0.87
14000	1.08	1.00	0.93
15000	1.15	1.07	1.00
16000	1.23	1.14	1.07
17000	1.31	1.22	1.13
18000	1.38	1.28	1.20

The quantity of chlorine needed is 1.07 kg.

Cleaning and Disinfection of Water Storage Tank and Distribution Network			
Date and Time	Name of Participant	Activity Realized	Notes