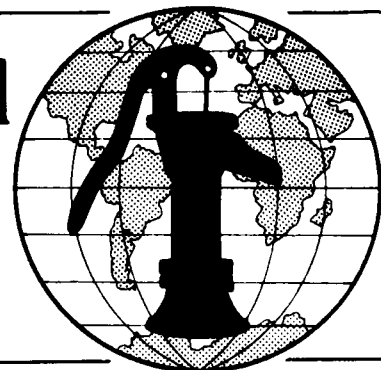


Water for the World



Operating and Maintaining a Chemical Disinfection Unit Technical Note No. RWS. 3.O.4

When chlorine compounds are used for disinfecting drinking water, the systems that add chlorine to water must be well maintained to provide the correct dosage and prevent any disruption in the application of chlorine. This technical note discusses the operation and maintenance of simple disinfection units and describes a maintenance program to follow to ensure constant and adequate treatment of water.

Useful Definition

CHLORINE RESIDUAL - Amount of chlorine left over in water after the chlorine demand has been met; only then is disinfection certain.

For all chemical disinfection units--pot chlorinators, drip feed chlorinators and floating bowl chlorinators--the most important task is to make sure that sufficient chlorine is available in the water. For successful operation and maintenance, follow these steps:

- Check each chlorinator periodically. It is very easy to tell when drip and floating bowl chlorinators need additional chlorine. When the solution is low, refill the jar or barrel with a one or two percent chlorine solution. At first, it is more difficult to determine when to change the chlorine in pot chlorinators unless the water can be tested. The volume of water and its quality determines how long the chlorine will last. Generally, chlorine powder should be changed at least every week or ten days. Establish a regular schedule for refilling chlorinators.

- When removing a chlorinator to add additional solution or powder, be sure to check that all parts are in good repair. In drip feed and floating bowl chlorinators, carefully inspect hoses and tubes. Rubber can be damaged by chlorine. Hoses must periodically be changed due to reaction with chlorine.

- Check pipes and tubes for clogging and remove any deposits or sediment that may have built up at the tube openings.

- Determine whether the flow of chlorine solution from the feeders is correct. If not, adjust the tube that lets the solution into the bowl. Raising the tube reduces the flow, while the flow is increased by lowering the tube. See Figure 1. Flow can also be controlled by using a clamp on the rubber hose.

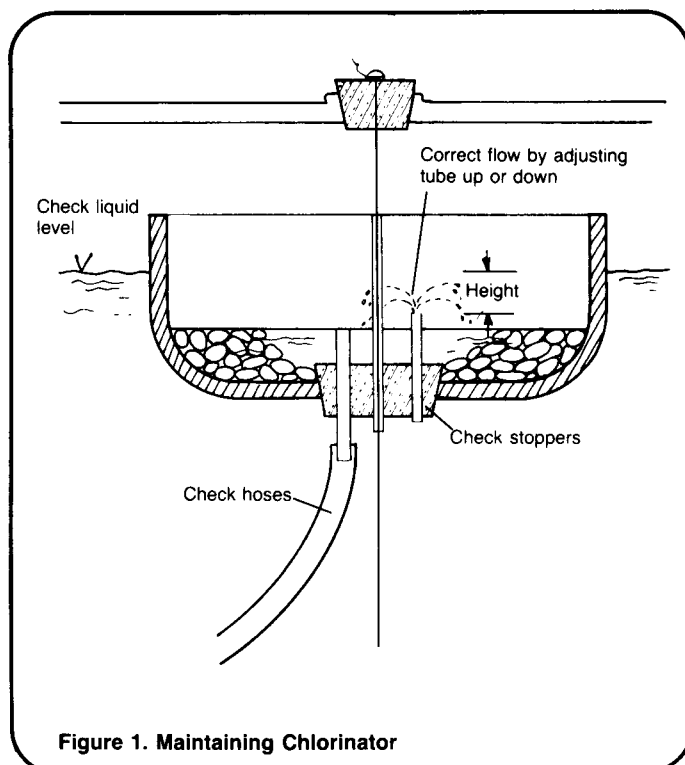


Figure 1. Maintaining Chlorinator

- Make sure that all supports for the chlorinator are strong. If chlorinators are hung by rope, be sure that the rope is not frayed. Change rope as necessary to prevent chlorinators from falling into wells.

- Store chlorine in a cool, dark place and be sure that all containers are well sealed. Improperly stored chlorine quickly loses its strength.

- Whenever possible, test the water before and after treatment to determine how much treatment is necessary and whether there is sufficient chlorine residual. Unless the water is tested, there is no real way to determine if treatment is adequate. Insufficient treatment is no more useful than no treatment at all. If testing is impossible, be sure that chlorine is always changed on schedule. Otherwise, there is no way of ensuring the quality of the water.

Technical Notes are part of a set of "Water for the World" materials produced under contract to the U.S. Agency for International Development by National Demonstration Water Project, Institute for Rural Water, and National Environmental Health Association. Artwork was done by Redwing Art Service. Technical Notes are intended to provide assistance to a broad range of people with field responsibility for village water supply and sanitation projects in the developing nations. For more detail on the purpose, organization and suggestions for use of Technical Notes, see the introductory Note in the series, titled "Using 'Water for the World' Technical Notes." Other parts of the "Water for the World" series include a comprehensive Program Manual and several Policy Perspectives. Further information on these materials may be obtained from the Development Information Center, Agency for International Development, Washington, D.C., 20523, U.S.A.