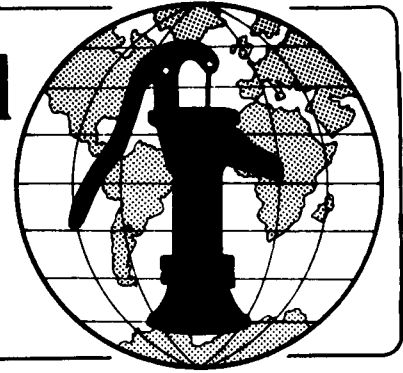


Water for the World



Operating and Maintaining a Sedimentation Basin Technical Note No. RWS. 3.O.2

Proper maintenance of sedimentation basins is necessary to ensure that they work efficiently and effectively. Unless properly cared for, sedimentation basins may not remove suspended matter from the water, causing filter systems or distribution systems to clog. This technical note discusses several measures that can be followed to ensure that the sedimentation basin works effectively and that clear water is provided for either the next treatment process or for storage.

Useful Definition

PEAK DEMAND - The greatest demand or need for water by the users; peak demands usually occur in the morning and late afternoon.

To maintain the sedimentation basin, the solids or sludge which settle to the bottom of the basin must be removed. The frequency of sludge removal depends on the quantities that collect on the bottom. This will usually be six to eight weeks. If the water is very turbid, sludge removal should take place more often. A thick sludge layer interferes with the sedimentation process by increasing the velocity of water in the tank. Furthermore, accumulations of sludge can decompose and cause tastes and odors.

To remove the sludge, the sedimentation basin must be taken out of operation.

- Cut off the flow of water into the sedimentation basin by closing the valve at the inlet to the basin. Before cutting off the water, be sure that the storage tank is filled so that people have access to water during the cleaning process. It is always a good

policy to advise users of a shut-down in the water system so that they use less water. It is important to try to cut off the supply only during off-peak demand periods. This will usually be from mid-morning to mid-afternoon.

- Drain all water from the tank through the drain located at the bottom of the tank. Allow all water and sediment to flow out of the tank.

- With shovels, buckets, pusher boards and wheelbarrow, remove the sludge from the tank by pushing it out through the drain and carry it away from the site. Figure 1 shows workers removing the sludge from a basin. If a pump and hose are available, flush the sludge off the bottom. Sludge has a high water content and should flow easily from the tank. A board fasten to a pole is useful for scraping the bottom completely clean. Rinse the tank completely before restarting operation.

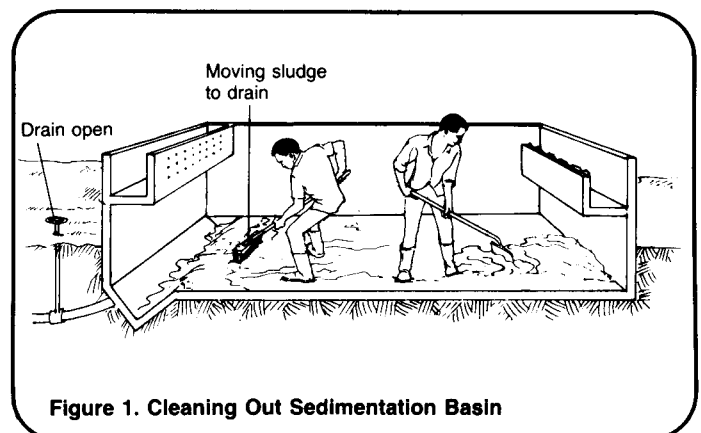


Figure 1. Cleaning Out Sedimentation Basin

- Remove the sludge as quickly as possible so that the basin is not out of operation for a long period of time. The water system should not be disrupted for more than one day. For small basins, this should not be a problem. The most time will be taken up refilling the tank.

In cases where water is low in turbidity, storage and sedimentation take place in the same tank and water is used directly. In these instances, water is generally not highly contaminated and tank cleaning is not necessary very often. When the tank must be cleaned, some provision for household storage or other storage should be made so that supplies to users is not completely cut off.

- Once all sediment is removed, close all drains and open the valve to

refill the tank. Once cleaned, the system should return to operation as soon as the tank fills. This will be within four to six hours, depending on the volume of the tank.

Cleaning and repairing a sedimentation basin is easier if the tank is designed with two separate sections which can be used independently. This type of design allows for continuous flow of water into the distribution system since one section can be cleaned while the other operates normally.

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.