

Storage tank

The main function of storage tanks is to smooth out variations in quantity and quality of water in a water supply. This is done by storing water during times when there is little demand, for example at night, and so making sure that there is enough water for peak demand times when many people need water at the same time. Storage tanks should also provide a temporary reserve of water against short term interruptions of supply from the source. The size of the reserve needed will depend on the population to be served, the reliability of the source, and the level of expertise and finance available for water supply maintenance.

Storage tanks are used in most piped networks, and vary in size from small tanks that are part of small gravity water supply systems, to large service reservoirs serving urban water supplies. Storage tanks should be checked, cleaned and disinfected regularly in order to reduce risks of contamination.

Wherever possible, storage tanks should be uphill of the community so that the water will flow through the system by gravity. Where this is not possible the tank can be elevated (see Figure 1) but these tanks are expensive and so are generally smaller.

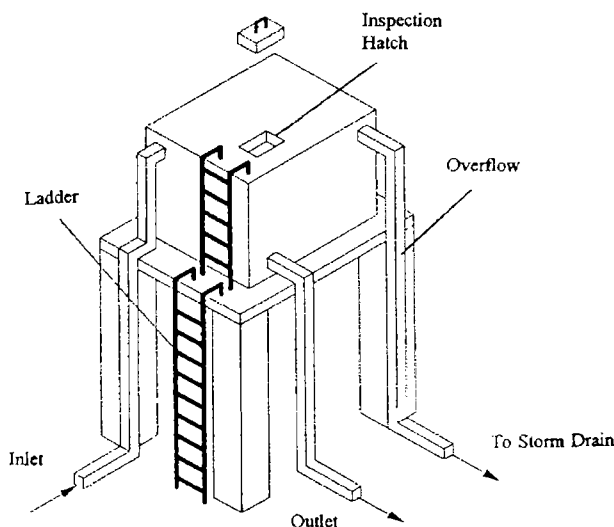


Figure 1. An elevated storage tank

Sanitary inspections of storage tanks

Regular sanitary inspections of storage tanks and reservoirs should be made to ensure that they remain in good working order and are regularly cleaned (see Fact Sheet 2.1). Sanitary inspections of storage tanks are usually done in conjunction with inspections of the distribution system as a whole. Where large reservoirs are used it may, however, be useful to conduct a separate sanitary inspection for the pipe system. Figure 2 summarizes the key points and observations to make when conducting a sanitary inspection of a storage tank and distribution network.

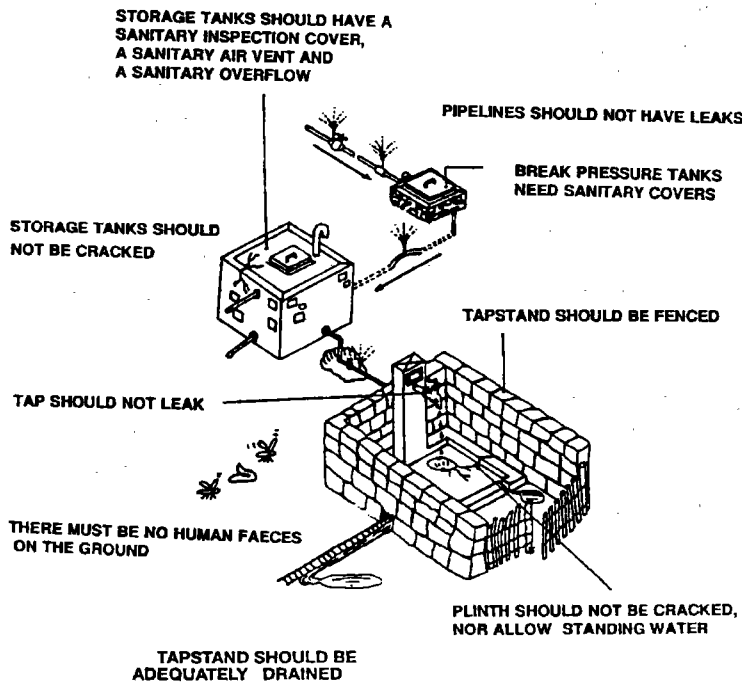


Figure 2. Sanitary inspection of a storage tank and distribution network

Upgrading of storage tanks

Storage tanks can be upgraded to make cleaning easier and to give better protection to the water stored inside.

Cleaning system

Storage tanks should be cleaned and disinfected every six months to remove sediment or other material in the tank (see Fact Sheet 2.26).

Sanitary lid

The sanitary lid has a raised lip which stops rain water washing germs into the storage tank (see Figure 3).

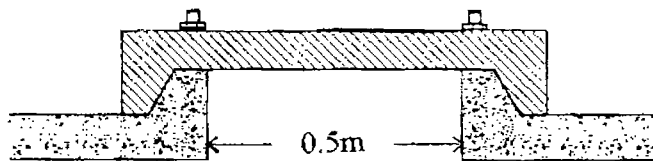


Figure 3. Sanitary lid

The sanitary lid should have a chain or bar with a padlock to prevent people from using the water in the tank for washing, as this could contaminate the water for other users. In large tanks or reservoirs, an inspection hatch with a sanitary cover will be required for access. An inspection walkway may also be built inside the tank.

Valves

To protect valves from damage, it is advisable to build a small concrete box with a lid for each valve. The floor of the valve box should be made of earth, to allow any water to soak away into the ground. The lid of the box can be simple but should have a chain or a bar locked with a padlock to stop unauthorised use of the valves. The valves should be greased and checked for damage and rust regularly.

Overflows and ventilation pipes

All overflows and ventilation pipes must have wire mesh over them, either inside or outside the tank. This is to stop small animals such as mice and bats getting into the storage tank and contaminating the water.

Major repairs

When major repairs to the tank, such as replastering the inside walls and floor, are necessary or cleaning is in progress, a by-pass can be fitted to the tank to allow the water from the source to continue flowing to the community. At peak water use times, there will not be enough water for everyone, but at least basic needs can be met while the tank is being repaired or serviced. A by-pass is shown in Figure 4.

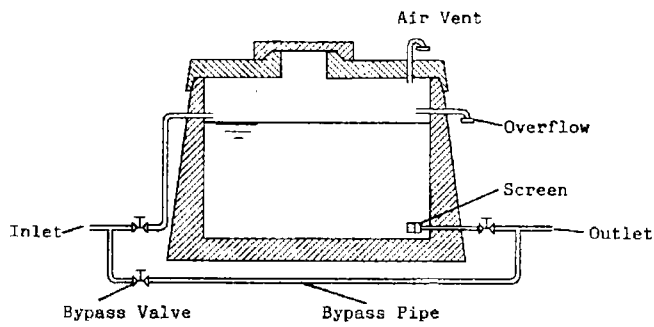


Figure 4. By-pass system

When large tanks and service reservoirs are used as part of an urban water supply, they should be made up of two compartments so as to enable supplies to be maintained whilst cleaning and repairs are in progress.

Disinfection of storage tanks

Disinfection of storage tanks is described in Fact Sheet 2.26.