Treating wastewater

Wastewater contains some potentially harmful microbes that can make humans sick and damage the environment. At SA Water's treatment plants, the wastewater is passed through a number of processes to clean it before it is discharged into the environment or recycled for other uses.

1. Screening out solids
   Screens remove large objects like rags, plastic, and paper.

2. Removing grit
   Wastewater enters the first settling tanks and is mixed by aeration (air bubbles are injected into the liquid). The grit then settles to the bottom and is collected and carted to licensed landfills.

3. Getting out the sludge
   In the second settling tanks, any small solid organic material left in the wastewater falls to the bottom of the tank. These solids are known as raw sludge. This waste is collected for further treatment in digestion tanks.

4. Digesting sludge
   Raw sludge is pumped into large anaerobic tanks (no oxygen) called digesters, where it is heated and mixed, to speed up the natural breakdown of the organic matter.

5. Aeration tanks
   Wastewater from the settling tanks is mixed with active biomass which contains a variety of microbes, but mainly bacteria. The active microbes feed on the organic pollutants and nutrients in the wastewater in a similar way that people eat food and breathe oxygen.

6. Separating biomass from water
   The mixture of biomass and wastewater passes into the last of the settling tanks where the biomass settles to the bottom. Most of the active biomass is pumped back to the aeration tank to continue the treatment process. The remainder is pumped to the digesters.

7. Filtration
   Some water undergoes further treatment by filtering through beds of sand to remove fine particles and then chlorinated to kill any remaining harmful microbes.

Recycled water for reuse always flows through blue pipes.

Biosolids

Biosolids are used by farmers to improve soil for growing crops such as wheat and barley.

Clear water

Increasing amounts of clear water from these lagoons is being recycled. The remainder is discharged into Gulf St Vincent.

To the ocean

Lagoons

At the Bolivar treatment plant, treated wastewater flows through lagoons. Natural sunlight over time helps to further disinfect the water.
Recycled Water

Recycled water from the Christies Beach Wastewater Treatment Plant is used to:
- Irrigate vines at Willunga and Aldinga south of Adelaide

Recycled water from the Glenelg Wastewater Treatment Plant is used to:
- Irrigate some local sports and recreation grounds
  - This is being extended to include the Adelaide Park Lands
  - Flow toilets and water gardens at the Adelaide Airport

Recycled water from the Bolivar Wastewater Treatment Plant is used to:
- Irrigate a wetland to grow food for animals at the Adelaide Zoo
- Irrigate market gardens at Virginia
- Flow toilets and water gardens at Mawson Lakes Housing development

Saving water and the environment

Recycling means less demand on our fresh water supplies such as the Mount Lofty Ranges reservoirs, ground water and the River Murray.

Recycling means a sustainable water supply for crops, paddocks and some housing developments. SA Water continues to be a leader in wastewater treatment and reuse.

This page highlights the major use of recycled water from Christies Beach, Glenelg and Bolivar.