

Pumped from managed water storage

1 Coagulation

A chemical (coagulant) is added to the untreated raw water to act on impurities such as dissolved organic matter. The coagulant traps and separates these impurities from the

rest of the water, forming them into 'floc' particles which can be up to 5mm in diameter. This process is also known as 'flash-mixing' – a description of the high mixing energy required when the coagulant is added.

2

Flocculation

This step uses a gentle mixing process to bring together the 'flocs' formed in the coagulation step to

form larger floc that will settle more easily. Water remains in the flocculation tanks for a minimum of 20-30 minutes.

3 Sedimentation

The water and the large suspended floc particles pass through sedimentation basins where after several hours most of the floc settles to the bottom of the basins forming a 'sludge'. The water, now containing

only a small amount of very fine floc particles, continues on to the filters. The sludge is removed for further treatment and disposal; it can also be re-used for landfill and soil conditioning.

Sludge for treatment

4 Filtration

In this step any remaining solids are separated from the water by passing them through a filter. The most common filters are sand or a sand/anthracite (a mineral sometimes referred to as 'hard coal') combination. As the water passes through the filter bed, any particles remaining in the water are trapped in the fine spaces within the media, resulting in clear water.

5

Disinfection

The most common types of chemical disinfectant are chlorine compounds – chlorine, chlorine dioxide and chloramines. Chlorine is generally added after the water has been filtered

and before it goes to the storage tanks, to destroy microorganisms. Another disinfection method used at some treatment plants is ultraviolet light (UV).

Fluoridation

In major water supply systems fluoride is added to the treated drinking water to help prevent tooth decay.

6

Storage

The clean water is transferred to covered water storage tanks ready for distribution to SA Water's customers.

Water Quality Treatment

At every stage of the water treatment process, SA Water scientists test the water quality. They ensure the water delivered to your tap is clean and safe to drink, 24 hours a day!

Treating Water

Delivering safe, clean drinking water

Delivering a healthy and reliable supply of drinking water is essential for our community. SA Water supplies water all over the State from metropolitan Adelaide to many regional and remote communities.

Water is collected from a number of sources including the River Murray, surface water (reservoirs), groundwater and the sea. When water enters a water treatment

plant it undergoes a multi-stage treatment process to ensure it is safe, clean and ready for use in homes, schools and businesses.

Condensation

The water vapour cools and turns back into tiny water droplets, forming clouds.

Precipitation

When liquid water drops join together they become heavy, and fall back to the ground.

There will never be any more water on Earth than there is now. No new water is being made and water can't escape from the atmosphere. The water we use is recycled over and over again. This process is known as the water cycle.

The Water Cycle

Evaporation

Energy (mainly from the sun) changes water from a liquid into an invisible gas (water vapour) which rises into the atmosphere.

Transpiration

Water evaporating from plants.

River

Water from the River Murray is used to supply towns along the river as well as supplementing the metropolitan water supply.

Surface run off

Water that moves across the land surface.

Surface water

Surface water is the water collected from the land surface in a catchment. The Mount Lofty Ranges Catchment is the largest catchment area in South Australia. Water from this catchment runs into reservoirs after it has rained. The water is mixed with other water sources and then pumped to a water treatment plant. See other side

Managed water storage

Artificial and natural bodies of water such as lakes, rivers, reservoirs, aquifers and wetlands that are managed to supply water.

Infiltration

The process of water moving into the sub-surface soil and rock.

Groundwater pumping station

Aquifer

Groundwater is water found in underground water bodies called aquifers. Some of this water is moving slowly. Water can be extracted from

these aquifers using a bore—a pump at the end of a long vertical pipe. For some areas of South Australia groundwater is the main water supply.

Ocean

Seawater is used to supplement the drinking water supply. Seawater can be made into drinking water using a process called reverse osmosis.