

Wollongong Water Recycling Plant

Wollongong Water Recycling Plant is one of 30 water recycling treatment and wastewater treatment plants in Sydney, the Blue Mountains and the Illawarra. It serves Wollongong and surrounding suburbs.

The plant treats about 45 million litres of wastewater a day, equal to the waste produced by about 200,000 people. The catchment includes a mix of homes and industries.

Primary treatment

Wastewater enters the plant in two streams. The first stream is from Port Kembla and the other is flow from Wollongong and Bellambi.

Step screens and aerated grit chamber

Both streams pass through step screens to remove items like paper, cotton tips and plastic. Aerated grit chambers remove sand and grit.

Sedimentation

The Port Kembla stream passes through a multi flow tank and the Wollongong flow passes through a sedimentation tank.

In both these two tanks, solids settle to the bottom from where they are removed. Oil and grease float to the top and are removed by scrapers.

Flow splitter

The flow splitter distributes the flow between two different treatment lines to produce wastewater of two different qualities, fit for either recycling or discharge to the ocean.

Secondary treatment

Bioreactor

Flow that will be treated to water recycling quality enters the Biological Nutrient Removal (BNR) bioreactor.

Flow that will be treated for discharge to the ocean goes through the Conventional Activated Sludge (CONVAS) bioreactor. In the bioreactors, different environments allow microorganisms to break down pollutants, such as nutrients and organics in the wastewater.

Clarifier

Both the wastewater for recycling and the wastewater for ocean discharge flow to clarifiers where solids settle out. The clearer wastewater flows on for tertiary treatment.

Tertiary treatment

Filters

Both the wastewater for recycling and the wastewater for ocean discharge go through dual media filters made of sand and crushed coal. The filters trap small particles while the wastewater flows through.

UV disinfection

The treated wastewater heading to the ocean outfall is disinfected with ultraviolet light.

Water recycling

The tertiary treated wastewater is treated further with micro filtration and reverse osmosis membranes. Reverse osmosis membranes have extremely small pore sizes which remove molecules including bacteria, viruses and parasites. The treated wastewater is then sent to our recycled water customers.

Through a process known as cogeneration, we're turning waste methane gas (biogas) into electricity to help power our wastewater treatment plants.

Solids handling

Solids from the multi flow tank, sedimentation tank and clarifiers are fed into anaerobic digesters that stabilise the solids and prevent odours. The digesters produce a gas, methane, which can be used to produce energy through cogeneration.

High speed centrifuges remove excess moisture. The dewatered sludge is known as biosolids and is beneficially re-used in agriculture, forestry, land rehabilitation and landscaping.

