

Purified recycled water in South East Queensland

Finding new water sources that allow us to be less dependent on rain is essential to South East Queensland's water future. Purified recycled water is a safe method of re-treating and re-using water that would otherwise go to waste and has long been a part of the drought response plan for our region.

How does it work?

Purified recycled water is made using treated wastewater, which undergoes a number of advanced water treatment processes to meet the stringent standards set by the *Australian Drinking Water Guidelines (2011)*.

After these treatment processes are complete, the water is used to replenish Lake Wivenhoe, blending it with captured rainwater already in the lake, before it is treated once more at our traditional water treatment plants at Mt Crosby.

Wastewater treatment

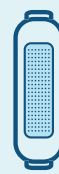
Urban Utilities removes and treats wastewater from homes, business and industry across South East Queensland.

Seqwater's three advanced water treatment plants receive treated wastewater from six Urban Utilities wastewater treatment plants. These six plants treat the wastewater to a very high level using a number of screening and biological treatment steps.

Strict controls, including the trade waste management program, prevent hazardous materials, such as clinical waste from hospitals and industrial waste, from entering the wastewater network. Close monitoring of wastewater at all stages of treatment, ensures it meets the quality controls required for the advanced water treatment plants.

Purified recycled water treatment

The advanced water treatment process to produce purified recycled water consists of several stages:



Membrane filtration

A process where water passes through very fine hollow fibre membranes 0.1 to 0.4 micrometres in size (human hair ranges in size from 20 to 200 micrometres in diameter) to remove particulate matter, protozoa and most bacteria.



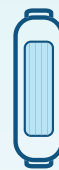
Reverse osmosis

A process that forces filtered water, at high pressure, through a special membrane to remove contaminants larger than a water molecule such as dissolved salts, viruses, pesticides and most organic compounds.



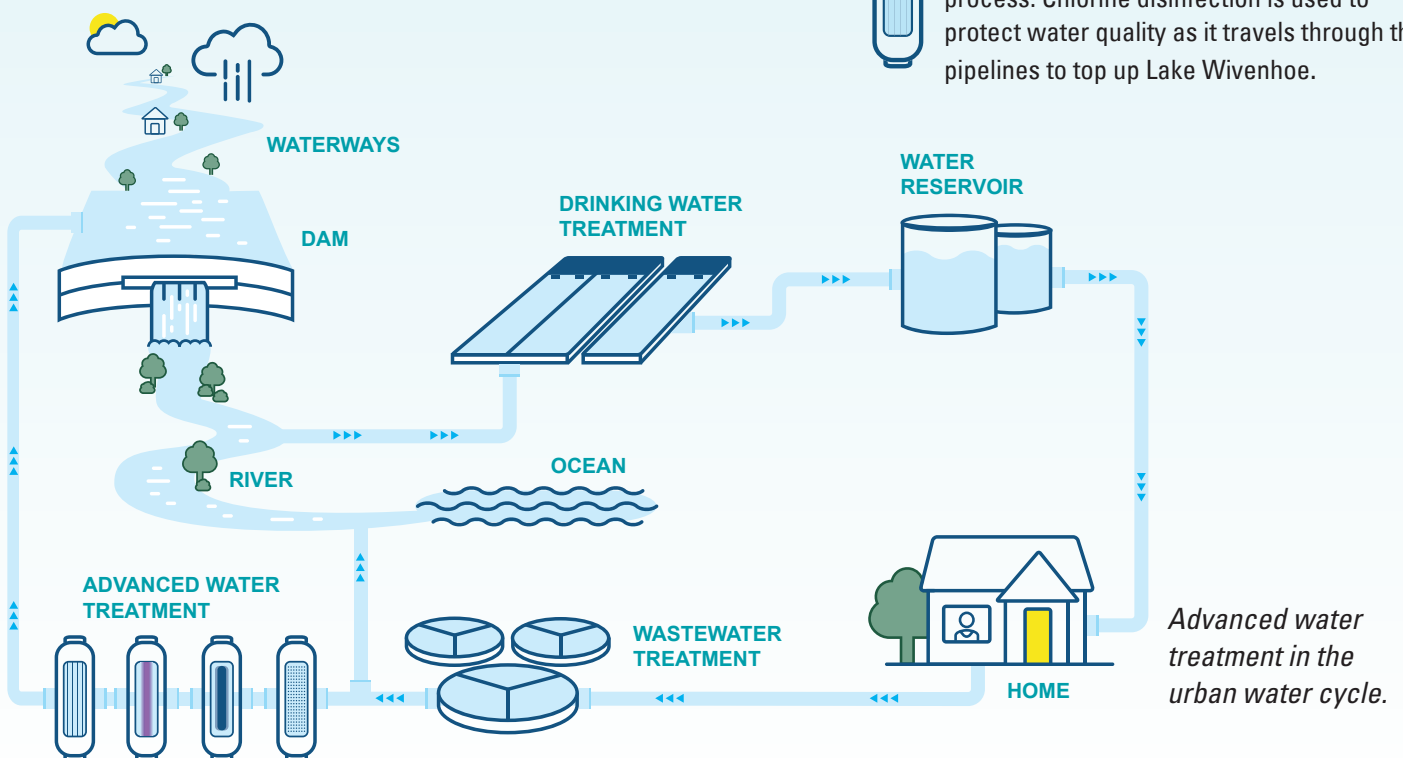
Ultraviolet advanced oxidation

A process where ultraviolet light, in combination with hydrogen peroxide, is used to destroy any remaining trace amounts of impurities.



Disinfection

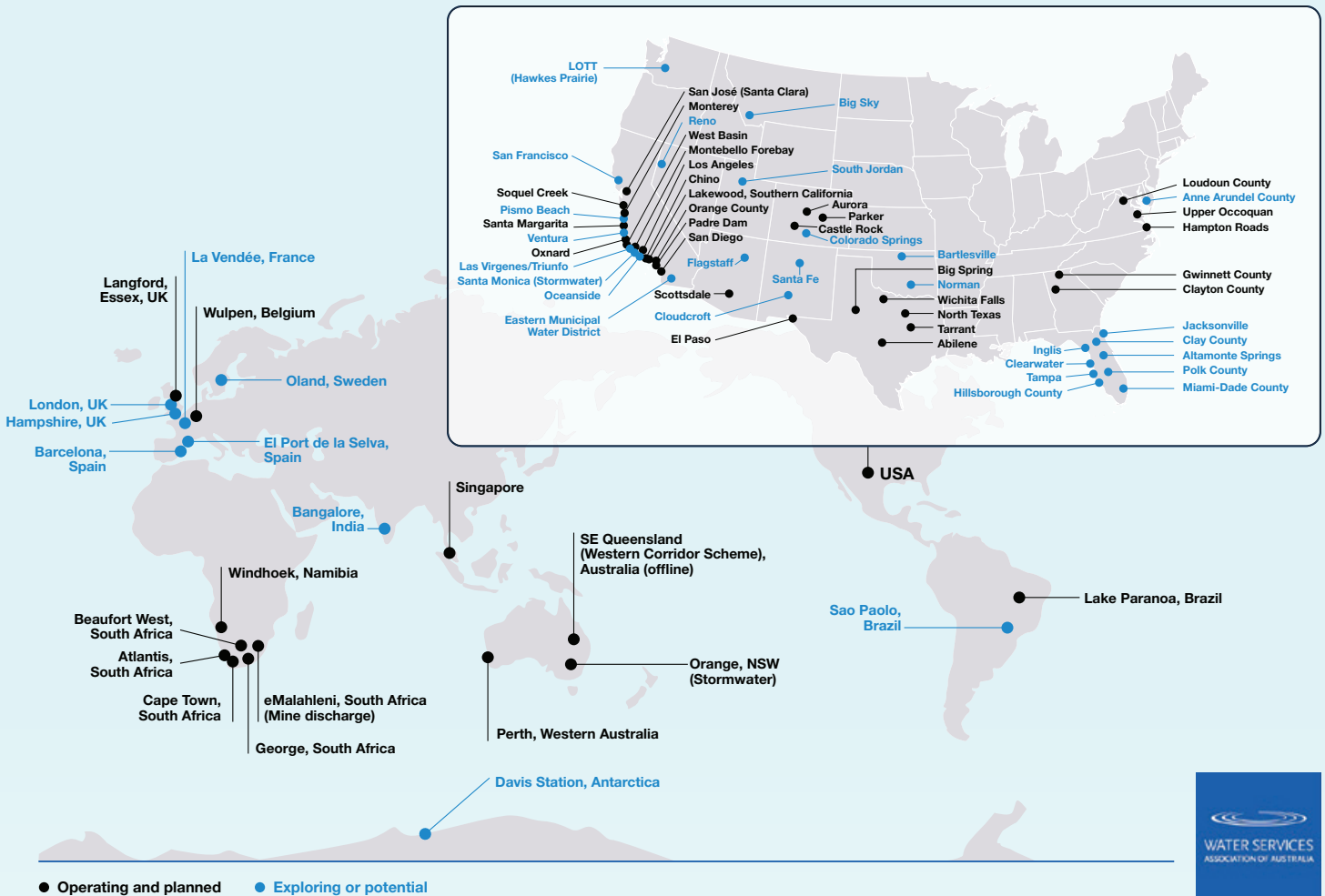
The final stage of the water treatment process. Chlorine disinfection is used to protect water quality as it travels through the pipelines to top up Lake Wivenhoe.



Advanced water treatment in the urban water cycle.

Purified recycled water around the world

For more than 50 years, people have been safely drinking purified recycled water in cities across the world including Los Angeles, Singapore and in Perth, Australia.



COVID-19 and purified recycled water

There is no evidence that COVID-19 has been transmitted via wastewater, either before or after treatment, or by drinking purified recycled water. Firstly, it's important to remember it is non-viable fragments of the virus that have been detected in wastewater networks. This means they are not infectious. Also, all viruses including SARS-coV-2, are removed during the purified recycled water treatment process through membrane filtration and reverse osmosis.

Removing pharmaceuticals, hormones and chemicals from wastewater

Purified recycled water undergoes a number of advanced treatment processes to filter out microscopic particles like silt, chemicals, hormones and microorganisms like bacteria. Then the water is exposed to intense UV light dosed with hydrogen peroxide to destroy any trace amounts of impurities, so that it is safe for drinking and complies with the Queensland Public Health Act and Regulation, Australian Guidelines for Water Recycling and the *Australian Drinking Water Guidelines (2011)*. A comprehensive testing and monitoring program makes sure water quality is verified multiple times a day.

