



Client
DISTRICT COUNCIL OF TUMBY BAY

Address
TUMBY BAY, SA

Completion Date
MAY, 2009

Factor UTB designed and built the Tumby Bay Wastewater Treatment Plant to replace treatment lagoons. Tumby Bay is located 40 km North of Port Lincoln and has 1500 residents, a hospital, school, motel, two hotels, caravan park and sports clubs that service the wider rural areas.

The plant is located within an industrial estate and about 120m from residential premises, The plant produces reclaimed water to a quality that meets Australian Water Reuse Guidelines for irrigation of playing fields and public parks.

Wastewater is delivered from the multiple pump stations within the township to the Balance Tank where it is refreshed to prevent anaerobic digestion and associated foul odours.

Waste water is batch fed into the Bioreactor where an aerator / mixer provides mixing energy and oxygen for the treatment. Control instrumentation including dissolved oxygen is used to control processing precisely. The process removes nutrients and organic loads concentrating minerals and waste into the settled sludge and releases carbon dioxide, water and nitrogen to the atmosphere.

DESIGN PARAMETERS

	Original 2009	Upgrade 2014
Design AAF	238 kL / day	340 kL / day
Peak Flow	630 kL / day	630 kL / day
Max Instantaneous Flow	14 L / sec	14 L / sec
Peak BOD Removal Capacity	163kg / day	234kg / day
Peak Nitrogen Removal Capacity	26kg / day	36kg / day



TUMBY BAY WASTEWATER TREATMENT PLANT



Irrigation pumps pressurises the irrigation main throughout the township. A fill station at the plant is also available. Currently more than ten users tap into the irrigation main to irrigate green spaces including the foreshore, sports grounds and recreational parks at their designated times.

In 2014 growth of town required the capacity of the plant to be increased. The upgrade had been anticipated in the original design and a blower was added to the aeration system increasing the capacity of the plant by 35-40% without substantial alteration to pumps or tankage. The growth of Tumby Bay has in part be attributed to the greening of the township from the use of the recycled water made possible by the plant.

The plant is fully automatic and only requires a weekly visit by the operator to review operations, top up chemicals and conduct routine inspection of the site.

Settling and clarification are carried out in the same reactor basin, after settling the decanter removes the clear water from just below the top of the water column by gravity using a solids excluding floating decanter to the Decant Tank.

Activated sludge produced by the biological process settles to the bottom of the bioreactor. Excess is discharged from the reactor to the Sludge Thickening Tank.

The on site Irrigation Tank is kept full with a small excess discharged to the unused treatment lagoons for evaporation. Treated water from the decant tank is filtered by disk filter and media filtration before disinfection by Ultraviolet light.

