Water Technologies & Solutions
case study

Australian wastewater treatment plant reduces discharge significantly with ZeeWeed* MBR

Application: ZeeWeed hollow fibre MBR wastewater reuse

Location: Cleveland Bay, Townsville, Queensland, Australia

Capacity: 29ML/day average daily flow with a peak flow through MBR of 75ML/day

Commissioned: March 2008

challenge

Like everywhere in Australia, the Townsville area had been facing severe drought conditions. On top of the water restrictions, the Environmental Protection Agency had implemented more stringent licence agreements for cities in the Great Barrier Reef area. Of particular concern was both nitrogen and phosphate in the effluent quality.

solution

The Townsville Council had to rebuild their Cleveland Bay Wastewater Treatment Plant using state of the art technology. Due to the small footprint of its technology, SUEZ were chosen for the UF (Ultrafiltration) supplier utilising their hollow fibre membranes for the membrane bioreactor.

The process consists of two MBR streams that have been constructed through the modification of existing secondary clarifiers.

This was achieved through a novel circular design in which the membrane tanks are located centrally with an oxidation ditch forming the outer annulus.

The plant is currently processing 23 megalitres of effluent a day with a design dry weather flow of 29 megalitres per day. It also has a design peak wet weather flow of 145 megalitres per day, of which 75 megalitres flows through secondary treatment and the membrane system.

results

The plant was completely rebuilt over an 18-month period making it one of the largest membrane bioreactor wastewater treatment plants of its type in the southern hemisphere.

Find a contact near you by visiting www.suezwatertechnologies.com and clicking on "Contact Us."

CS1286EN.docx Jun-13

The plant has reduced the amount of nutrient discharge into the environment by around 140 tonnes per annum. The amount of nitrogen discharge has been reduced from 138 tonnes a year to 30 tonnes, and the amount of phosphorus has been reduced from 43 tonnes to just 8 tonnes per year.

With better quality water being discharged into the environment, this has reduced the impact on the local marine life.

With the Townsville population rapidly increasing, the council has to look at future plans to also reuse this treated water. Recycling the treated water for civic and commercial purposes are key areas where this water can be used.