

# CASE STUDY



**PROJECT** PEAK DEMAND CONTINGENCY AERATION FOR OXIDATION DITCHES  
**PRODUCT** Floating Brush Aerators (FBA)  
**INDUSTRY** Municipal  
**LOCATION** Adelaide Hills, South Australia

## BACKGROUND

A major South Australian municipal water authority was considering options for the upgrade of the Wastewater Treatment Plant to cater for short-term load spikes during holiday periods. Their biological treatment process consists of two oxidation ditches operating in parallel. Fixed diffused aeration is installed in both oxidation ditches. During seasonal/holiday peak loads the aeration capacity of the system is inadequate which, historically, has led to poor plant performance and an associated reduction in effluent quality. The authority was evaluating options to expand the plant (by building additional biological treatment capacity at great expense) or finding a solution to augment aeration (required only during peak holiday periods) that would allow them to retain the oxidation ditches without any additional works. Key challenges for selecting the most suitable contingency aeration system included:

- System must offer high aeration efficiency (limited power on site)
- System must be simple to install quickly when required without taking the oxidation ditches out of operation
- System must be customisable to suit the oxidation ditch dimensions and site constraints

MAK Water was selected to provide Floating Brush Aerators (FBA) to provide contingency aeration for the oxidation ditches.

## SOLUTION

MAK Water provided two 11 kW Floating Brush Aerators (FBAs), one for each Oxidation Ditch, each capable of delivering approx. 20 kg/h of oxygen (Standard Oxygen Transfer Rate). The equipment is operated as contingency aeration systems assisting the diffused aeration system, and only run as required when dissolved oxygen (DO) levels drop and demand that extra aeration is required.

The Floating Brush Aerators were designed and built as complete assemblies, that allowed them to be lifted into the Oxidation Ditch channels, ready for operation once connected to power supply.

## MAK WATER KEY SOLUTIONS

- Highly customised Floating Brush Aerators designed to suit Oxidation Ditch channel dimensions
- Equipment operational within hours of installation, without impacting the operation of the Oxidation Ditches
- No civil modifications required to accommodate equipment
- Low operator input & minimal maintenance requirements
- Easily integrated into existing process

## RESULTS AND BENEFITS

- **Performance:** FBAs deliver the extra DO demanded during holiday period peak loads, and their addition have returned the plant performance to full compliance.
- **Sustainability.** The FBA solution is power efficient, “plugs in” to the existing plant without significant civil works and improves effluent quality.
- **Reduced costs:** Major savings in CAPEX realised by not having to expand biological treatment capacity through additional works, as well as power efficiency.



*One of the Floating Brush Aerators being installed in an oxidation ditch. This solution can be quickly installed and uninstalled to meet peak demand seasons*