

## Case Study 7: **Waste Water Disinfection Trial** **Disinfection of Treated Wastewater – Aerobic Treatment Systems**



The ASTP as used in the trial.

### Background

Aerobic Sewage Treatment Plants (ASTP) process sewage to Class A standard re-use water. This water when discharged is able to be used for car washing, toilet flush water, unrestricted irrigation including above ground sprinkler irrigation, unrestricted dust suppression and domestic garden watering. To enable this, the discharged water must contain less than 10cfu/100mL (colony forming unit per mL) for thermo-tolerant (E-coli) bacteria. This disinfection is typically carried out by passing the treated water over calcium hypochlorite tablets and into a detention tank prior to batch discharge. This method of disinfection depends on the manual servicing of the system to replace the calcium hypochlorite tablets at least every three months.

### Challenge

To develop an automated disinfection technique that disinfects the treated wastewater without the use of calcium hypochlorite tablets while producing a free chlorine residual in the discharge water. This would provide a more reliable disinfection of the treated water to ensure compliance at all times with the South Australian Reclaimed Water Guidelines (Treated Effluent) requirements.

### Outcome

A pilot trial was undertaken using a proprietary ASTP that was installed by the manufacturer at a municipal wastewater treatment plant in suburban Adelaide SA for the purpose of testing the efficacy of the Hydro-dis electro-catalytic disinfection technique. A Hydro-dis cell was installed into the final discharge line so that all the water during discharge passed through the cell. The ASTP was supplied with raw influent to enable the ASTP to operate normally and therefore allow accurate and representative assessment of the Hydro-dis disinfection compared with calcium hypochlorite.

A sample of discharge water exiting the Hydro-dis cell was taken during each discharge cycle for microbiological analyses by a NATA accredited laboratory. Samples were taken from four successive discharge cycles per day for five consecutive days and the results for each sample taken were less than 10cfu/100mL. This test regime was repeated the following week and all test results were again less than 10cfu/mL.

This data confirmed that the Hydro-dis system had effectively and consistently provided the disinfection required to allow the ASTP to be certified to use the Hydro-dis to provide Class A re-use water.