CASE STUDY

PROJECT POTABLE WATER FOR REMOTE TOWNSHIP

PRODUCT Reverse Osmosis and Antiscalant

INDUSTRY Infrastructure and Urban Development

LOCATION Yulara, Northern Territory

mak water
water | wastewater | sewage

BACKGROUND

Yulara is a major tourist town and community in central Australia. Municipal potable water is supplied by a 1.5MLD reverse osmosis plant, fed by a bore field with a high silica feed stream. MAK Water conducted a performance review of the plant and noted the reverse osmosis membranes were not lasting as long as would be expected and were hard to remove due to silica scale build-up. This indicated that the existing antiscalent used at the plant was failing to protect the membranes.

The recommendation was to change to a new antiscalent formulation that would prevent silica scale forming on the membranes, and thus improve plant performance, obtain longer life from the membranes and lower maintenance costs.

SOLUTION

Ongoing performance review of the plant included:

REVIEWS OF PLANT LOGS

- Understanding the site and plant needs
- Collaboration with operators
- Tuning "Clean in Place" (CIP) regimes and operating parameters

LONG TERM VS SHORT TERM

- Change of product – from previous antiscalent to MAK S5 Antiscalent
- Monitoring normalisation data and salt passage
- Results provided confidence in the solution to do the job

MEMBRANE REPLACEMENT

- Selection of the right membranes with a properly prepared design simulation
- Using the right antiscalent and CIP regime for the feed water conditions

RESULTS AND BENEFITS

- **Maximised Membrane Life**. The membranes will last over 25% longer under normal operating conditions, thus providing a significant cost saving for the site.
- **Partnership.** A close partnership approach between the client and MAK Water resulted in rapid results.
- **Lowest total operating cost.** Fewer CIPs results in a longer membrane life and lower dose rates required.

Yalara, Northern Territory

Membranes using an inappropriate antiscalent resulting in degradation of the membranes and subsequent shorter lifespan

Membranes at the same age, using the MAK Water S5 antiscalent resulting in a longer membrane life and lower dose rates required