

CASE STUDY



PROJECT DEMINERALISED WATER PLANT UPGRADE FOR SILICON SMELTER

PRODUCT Brackish Water Reverse Osmosis
INDUSTRY Manufacturing
LOCATION Bunbury, Western Australia

BACKGROUND

A major Silicon Smelter in Western Australia's South West operates a Reverse Osmosis (RO) plant to produce demineralised water for use in their process.

The client commissioned MAK Water to undertake an engineering review of the plant and make recommendations on how to increase the production rate, whilst minimising downtime required for installation of any upgrade.

SOLUTION

The existing Reverse Osmosis (RO) plant had two stages and was operating at its design limit with recovery efficiency at 70%. MAK Water identified the recovery rate, and therefore total water treatment plant capacity could be increased by adding a third RO stage.

ADDING 3RD RO STAGE

- Increased the recovery to 90%
- Increased total plant output by 25%

MODULAR SOLUTION

- Pre-fabricated RO skid
- Testing conducted in the MAK Water workshop
- Minimised on site works and smelter plant downtime

RESULTS AND BENEFITS

- **Turnkey solution.** MAK Water supplied a one stop shop from design review through to delivery and installation of the third stage of RO membranes and commissioning.
- **Minimal on site disruption.** The modular approach allowed MAK Water to build and test the equipment in-house and the new equipment was installed by with the existing plant still in operation. Water production was virtually uninterrupted during the installation, significantly reducing the smelter plant downtime.



MAK Water undertook an engineering review of the existing reverse osmosis plant



A third reverse osmosis stage was added to increase the recovery and reduce the brine volume