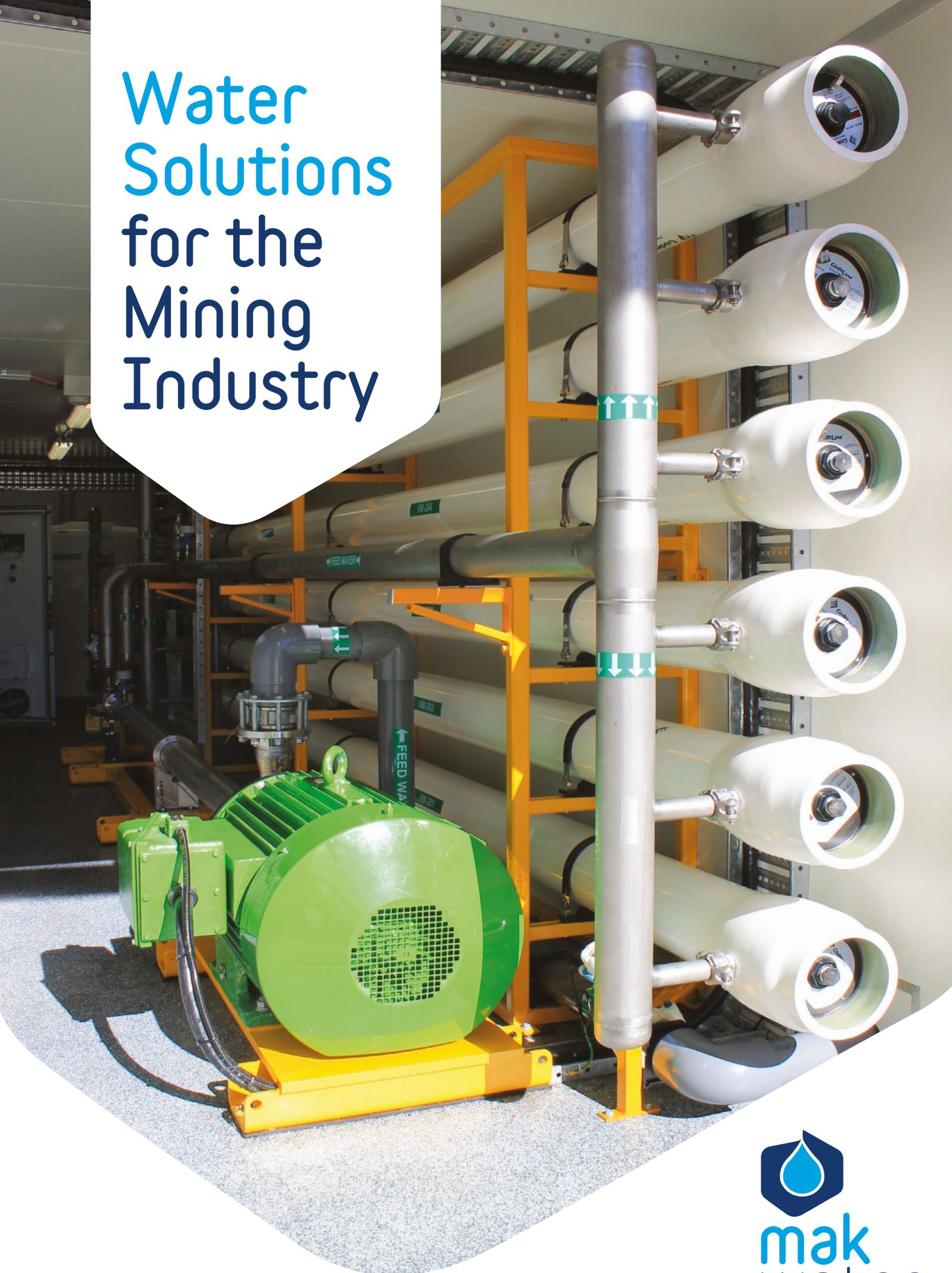


# Water Solutions for the Mining Industry



# Reliable Mining Expertise

**EXPERIENCED.** From the extreme heat of remote Australia and Africa, to the cold climates of Mongolia and Kazakhstan, MAK Water has delivered solutions for mining projects of many sizes in the most challenging environments around the world.

**EQUIPMENT RELIABILITY.** In mining, equipment reliability is paramount. MAK Water has an established track record of manufacturing fully automated, high quality equipment for maximum reliability and minimum operator intervention.

**FLEXIBLE SOLUTIONS.** Our wide range of standard designs can be fully customised to meet project specifications. For short term requirements, rapidly deployable hire plants are available. Where project funds are better employed in other areas, MAK Water can offer a build-own-operate, or lease-to-own solutions.

**INNOVATIVE DESIGNS.** Our experienced design team use pre-tested modular configuration, saves time, reduces risk, and minimises installation costs and environmental footprint. Where installed, ClearAccess™ Remote Monitoring enables MAK Water's Operations Specialists to assist your site team to diagnose problems, preventing unnecessary service call-outs and improving reliability and plant uptime.

**END TO END SOLUTIONS.** From the supply of process technology only, to turnkey installations, we can design, build, install, operate and maintain all your project's water treatment plants.

## Mine Site Applications

From drinking and process water, to sewage and wastewater treatment, MAK Water's wide range of plant designs means we can meet all your mine project's water and wastewater treatment plant requirements.

### EXPLORATION, CONSTRUCTION AND PERMANENT ACCOMMODATION CAMPS

- ◆ Potable/drinking water treatment plants, treating ground, surface or sea water
- ◆ Sewage treatment plants, for compliant discharge, or onsite reuse
- ◆ Pumping, storage and sterilisation solutions for sewage, potable or fire water
- ◆ Hire filtration, reverse osmosis and sewage treatment plants for short-term construction requirements

### NON-PROCESS INFRASTRUCTURE

- ◆ Potable/drinking water treatment plants, treating ground, surface or sea water
- ◆ Sewage treatment plants, for compliant discharge, or onsite reuse
- ◆ Pumping, storage and sterilisation solutions for sewage, potable or fire water
- ◆ Oily water treatment and recycling systems for vehicle wash bays and workshops
- ◆ Demineralised water for boilers and cooling towers

### PROCESS INFRASTRUCTURE

- ◆ Process water treatment
- ◆ Process wastewater treatment for compliant discharge or recycling
- ◆ Mine site remediation and treatment of wastewater



### HEALTH, SAFETY AND THE ENVIRONMENT

**MAK Water places the Health and Safety of our people, clients and contractors, and care of the Environment as our highest priority.**



## Planning

It make sense to engage with MAK Water early in the planning phase. Understanding your water and wastewater treatment options reduces risk by preventing unnecessary delays and maximising the use of your valuable resources.

MAK Water works collaboratively with your environmental and engineering teams to develop solutions for every stage of the mining life cycle, to meet your project objectives.

Services provided to support the investigation and planning stage of the project include:

- ◆ Technology selection and expert process advice
- ◆ Budgeting and value engineering
- ◆ Assistance with obtaining environmental approvals
- ◆ Supply of trial plants and piloting equipment



## Design and Construction

Products and services provided to support greenfield sites and expansion of mine infrastructure:

- ◆ Supply of hire plants for construction water and temporary camps
- ◆ Supply of permanent water and wastewater treatment plants
- ◆ Installation, commissioning, performance testing and training
- ◆ Development of water and wastewater quality management plans
- ◆ Remediation and treatment of wastewater
- ◆ Operation, service and maintenance of water and wastewater assets
- ◆ Supply of chemicals, consumables and spare parts



## Operations

Products and services provided to support mine infrastructure include:

- ◆ Supply of water and wastewater treatment plants
- ◆ Operation, service and maintenance of water and wastewater assets
- ◆ Plant reviews, upgrades, modifications and refurbishments
- ◆ Implementation of water and wastewater quality management plans
- ◆ Regulatory compliance monitoring and reporting
- ◆ Supply of chemicals, consumables and spare parts
- ◆ Supply of hire plants for temporary plant outages, upgrades etc.



## Closure

Post operational and rehabilitation services include:

- ◆ Contaminated wastewater treatment for compliant discharge
- ◆ Irrigation water for plant nurseries
- ◆ Decommissioning and demobilisation of plant and equipment
- ◆ Remediation and treatment of wastewater

# Solutions

## BRACKISH WATER REVERSE OSMOSIS

Treat brackish ground, surface or industrial water to achieve potable water quality. Standard process includes pre-treatment, RO desalination and a clean-in-place (CIP) system for membrane cleaning. Add additional treatment steps as required.



## SEA WATER REVERSE OSMOSIS

Treat sea water or high salinity ground water to achieve potable water quality. Standard process includes pre-treatment, RO desalination, auto flushing and a clean-in-place (CIP) system for membrane cleaning. Add additional treatment steps as required.



## DEMINERALISED WATER REVERSE OSMOSIS

Treat fresh water to achieve high purity demineralised water. Standard process includes pre-treatment, two-pass RO desalination, permeate polishing with ion exchange or continuous electro-deionisation (CEDI), and a clean-in-place (CIP) system for membrane cleaning. Add additional treatment steps as required.



## WASTEWATER / SEWAGE MOVING BED BIOREACTOR

Treat sewage to achieve Class C effluent for reuse in "low risk" applications, or spray field disposal. Standard process includes screening, biological degradation, clarification and sterilisation. With the optional Class A module, reuse in "medium risk" applications is possible.



## WASTEWATER / SEWAGE MEMBRANE BIOREACTOR

Treat sewage to achieve Class A+ effluent for reuse in "high risk" applications. Standard process includes screening, biological degradation, ultrafiltration and sterilisation. Add additional treatment steps, such as enhanced nutrient removal, as required.



## OIL WATER SEPARATOR

Remove free floating hydrocarbons (diesel, hydraulic fluid, oil) and heavier solids from wastewater (prior to discharge) for any wash bay where hydrocarbons are present. Add additional treatment steps for reuse as required.



## MULTIMEDIA FILTRATION

Treat ground, surface, storm and waste water with suspended solids to achieve potable or process water. Standard process includes auto-backwashing multimedia filtration. Add additional filtration media and other treatment steps, such as sterilisation or pH correction, as required.



## ULTRAFILTRATION

Treat ground, surface, storm and waste water to achieve ultra-clear filtrate that is free of viruses and bacteria. Standard process includes pre-filtration, ultrafiltration and automated membrane cleaning systems. Add additional treatment steps as required.



## WATER STERILISATION

Automatically maintain the correct amount of free chlorine in a potable water storage tank, or use ultraviolet sterilisation to disinfect water, in accordance with Australian Drinking Water Guidelines.





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## Client Services

MAK Water are packaged plant specialists, providing industrial waste water, sewage and water treatment solutions in Australia and overseas.

For more than 20 years, our solutions have been helping clients achieve cleaner water solutions that are both cost-effective and regulatory compliant.

MAK Water offers customised water management systems, owns a substantial hire fleet, and provides service and maintenance for all types of water and wastewater treatment systems. A wide variety of consumables and chemicals for ongoing system performance and a complete range of standard products are also available.

MAK Water has built a reputation for delivering superior service and high performing systems, enabling clients to reduce operating costs and extend equipment life-cycles.

- ◆ Design
- ◆ Project Management
- ◆ Procurement
- ◆ Manufacturing
- ◆ Installation
- ◆ Commissioning
- ◆ Operation
- ◆ Service and Maintenance
- ◆ Consumables
- ◆ Spare Parts
- ◆ Equipment Hire