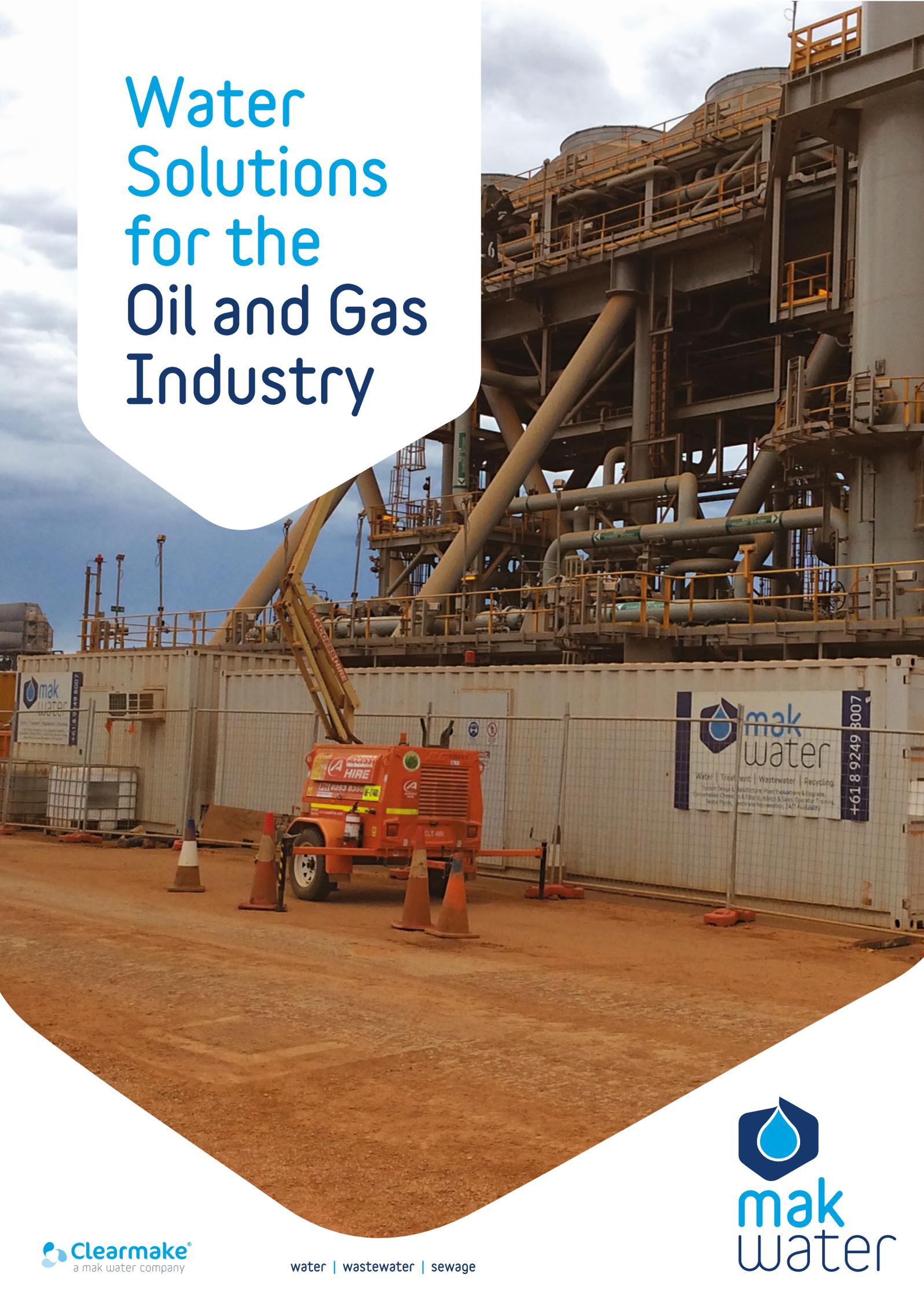


Water Solutions for the Oil and Gas Industry



 **mak water**
Water Treatment | Wastewater | Recycling
Process Design & Manufacturing Plant Evaluations & Upgrades
Compliance Chemicals & Emissions Advice & Safety Operator Training
Best Practice Health and Environmental 24/7 Availability
+61 8 9249 3007



Smart Water Solutions

MAK Water is an experienced supplier to the Oil and Gas industry.

MAK Water has designed, manufactured, installed, commissioned, operated and maintained water, wastewater and sewage treatment plants for world class LNG projects, offshore platforms, Floating Production Storage and Offloading (FPSO) vessels, gas pipelines and coal seam gas projects in Australia and internationally.

From emerging junior oil and gas explorers, through to tier one multinational oil and gas companies and utilities, MAK Water has proven capability to provide a wide range of standard and customised solutions for both upstream (onshore and offshore), midstream and downstream clients.

Reliable Oil and Gas Expertise

SAFETY FIRST. Safety is priority No. 1 in the Oil and Gas industry. MAK Water is proud of its proven track record of uncompromising commitment to safety in design, manufacturing, installation and operation: The health and safety of our personnel and clients is paramount in everything we do.

DESIGN AND DOCUMENTATION. Be it participation in hazard and operability studies (HAZOP), constructability reviews, human factor engineering, or compliance with client engineering specifications and vendor data requirements, MAK Water understands its clients' high standards for design, documentation and attention to detail.

QUALITY. MAK Water's ISO 9001 certified quality systems can be supplemented with project specific Quality Management Plans (QMP) and Inspection and Test Plans (ITP). Where requested, material traceability/certificates and positive material identification reports are incorporated into MAK Water's Manufacturer's Data Report (MDR).

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



WHAT OUR CLIENTS SAY ABOUT US

"I can confirm MAK Water's RO plant has been working well offshore with a high availability and minimal amount of maintenance, and has supplied us with good quality demineralised water to complete our ongoing hydro testing scope. We've been very satisfied with the service offered by the team at MAK Water in providing the project with a quality RO unit assembled, tested and delivered in a short space of time."

– Start-Up Process Engineer,
LNG PROJECT

"Engineering response was excellent and a quality product delivered on time."

– Project Engineer, GLNG PROJECT



Front End Engineering and Construction

It make sense to engage with MAK Water, from the Front End Engineering Design phase right through to construction and plant commissioning.

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 engineering team to develop solutions that meet your project objectives.

MAK Water provides the following solutions and services to support the engineering and construction stage of a project:

- ◆ Smart technology selection and advice
- ◆ Budgeting, cost optimisation and value engineering
- ◆ Assistance with obtaining environmental approvals
- ◆ Hire plants for construction water, commissioning works and temporary accommodation camps
- ◆ Supply of potable water treatment plants
- ◆ Supply of sewage treatment plants



Upstream Operations

From exploration to production, the upstream oil and gas industry uses and produces considerable volumes of water and wastewater. Whether to support production, or treating wastewater for reuse or discharge, MAK Water understands that reliability of supply, and quality of treated water is crucial.

MAK Water provides the following solutions and services to support upstream operations:

- ◆ Industrial process water
- ◆ Injection water for enhanced oil recovery, fracking or stimulation
- ◆ Potable water for camps, onshore and offshore facilities
- ◆ Ultra-pure (demineralised) water for boiler feed / steam generation
- ◆ Treatment of produced water / wastewater for reuse or discharge
- ◆ Sewage treatment for reuse or discharge
- ◆ Operation, service and maintenance of water and wastewater assets
- ◆ Supply of chemicals, consumables and spare parts



Midstream Operations

Water and wastewater treatment plays an important role in the processing and transportation sectors.

MAK Water provides the following solutions and services to support midstream operations:

- ◆ Industrial process water
- ◆ Cooling tower make up water
- ◆ Potable water for remote facilities
- ◆ Process and utility wastewater treatment for reuse or discharge
- ◆ Ultra-pure (demineralised) water for boiler feed / steam generation
- ◆ Storm water treatment for reuse or discharge
- ◆ Compressor condensate treatment for reuse or discharge
- ◆ Equipment and vehicle wash bay wastewater treatment for reuse or discharge
- ◆ Sewage treatment for reuse or discharge
- ◆ Oily water treatment for storage facilities and depots
- ◆ Operation, service and maintenance of water and wastewater assets
- ◆ Supply of chemicals, consumables and spare parts



Downstream Operations

Refineries, chemical and petrochemical plants use significant amounts of water in their processes.

Reusing treated effluent in downstream oil and gas operations helps ensure regulatory compliance, whilst minimising environment impact and reducing the consumption of freshwater. MAK Water provides the following solutions and services to support midstream operations:

- ◆ Industrial process water
- ◆ Cooling tower make up water
- ◆ Desalter wash water
- ◆ Ultra-pure (demineralised) water for boiler feed / steam generation
- ◆ Potable water treatment
- ◆ Storm water treatment for reuse or discharge
- ◆ Boiler and cooling tower blow down
- ◆ Wash down wastewater treatment for reuse or discharge
- ◆ Sewage treatment for reuse or discharge
- ◆ Oily wastewater treatment
- ◆ Operation, service and maintenance of water and wastewater assets
- ◆ Supply of chemicals, consumables and spare parts

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.



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.



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.



SEWAGE TREATMENT 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.



SEWAGE TREATMENT ACTIVATED SLUDGE 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.



DISSOLVED AIR FLOTATION

Counter-current system designed to achieve maximum treatment efficiency in a compact footprint. Removes a variety of contaminants to meet trade waste or reuse requirements.



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.





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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