

CASE STUDY

PROJECT	SEWAGE TREATMENT FOR AIRPORT
PRODUCT	Membrane Bioreactor
INDUSTRY	Infrastructure
LOCATION	Pilbara, Western Australia



BACKGROUND

Karratha is the powerhouse of Western Australia's Pilbara region. In 2009, the Airport commenced a \$100m redevelopment, which included the installation of a new packaged sewage treatment plant.

The plant was required to treat sewage generated in the terminal to achieve "risk category high" compliance values, in accordance with the guidelines for Non-Potable Use of Recycled Water in Western Australia, to enable onsite reuse for toilet flushing, landscape irrigation and for the automatic car washing facility.

MAK Water was engaged by the hydraulic services contractor to carry out the design, manufacture, commissioning and WA Department of Health (DoH) validation of the plant. MAK Water was subsequently awarded a five year contract to operate and maintain (O&M) the plant on behalf of the City of Karratha.

SOLUTION

Membrane Bioreactor (MBR) to treat 200 m³/day of sewage to "Risk Category High", validated and DoH approved for "risk category high" reuse, with 5 year O&M agreement.

DESIGN FEATURES

- Modular design minimised site installation works
- Custom fabricated steel bioreactor, containerised Ultrafiltration (UF) membrane filtration and ancillary equipment
- Fully automated with ClearAccess™ Remote Monitoring and Control

HASSLE FREE, TURN KEY SOLUTION

- 100% designed, constructed and tested off-site
- Plug and play site installation and commissioning
- Department of Health approvals for reuse
- 5 year O&M agreement for peace of mind

RESULTS AND BENEFITS

- **Safe, compliant effluent.** UF membranes provide a physical barrier to viruses and pathogens, as well as suspended solids. The chlorination system includes tank recirculation and online analysers for monitoring of free chlorine, pH and turbidity.
- **Reduced potable water consumption.** It makes sense, commercially and environmentally, to reuse treated wastewater for non-potable applications.
- **Project compliance.** MAK Water met the project specifications and Department of Health requirements for risk category high reuse.



Membrane Bioreactor Sewage Treatment Plant



Containerised UF plant and ancillary equipment