

MINE WATER TREATMENT FOR ENVIRONMENTAL DISCHARGE



Key Facts

Client: Peabody Energy

Site: Wilpinjong Coal Mine

Location: Mudgee, NSW

Purpose: To reduce water volumes stored on site and treat it for environmental discharge.

Technology: Ultra-filtration and Reverse Osmosis

Supporting infrastructure supplied by Ixom:

- Chemical Storage & Dosing Systems
- Cleaning-in-Place (CIP)
- Process tanks
- MCC, PLC, SCADA
- Plant utilities such as compressed air and process water
- Remote monitoring capability

Capacity: 3.0 ML/day permeate

Feed Water Source: Underground mine water stored in site dams

Treated Water Quality: EC < than 500 $\mu\text{S}/\text{cm}$ & pH at 6.5 – 8.5 (To meet EPA licence limits for creek discharge)

Contract Type: EPC (Turnkey) followed by Operation and Maintenance Contract

Start-up: 2012

Benefits:

Reduction in mine water storage by up to 3 ML/day efficiently and recycle water wherever possible

BACKGROUND

Peabody engaged Ixom to design and build a Water Treatment Plant (WTP) for their Wilpinjong Coal mine near Mudgee, NSW. The WTP is required to treat mine water that is currently stored in a number of dams on site. The objective is to reduce the water inventory to minimise the risk of disruptions to mining operations. To achieve this, the water needs to be treated to a quality suitable for discharge to the environment to comply with the EPA discharge license agreement.



Ixom Water Treatment Systems

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For specialist advice in an emergency, call Ixom's **24 HOUR EMERGENCY RESPONSE SERVICE**

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CUSTOMISED SOLUTION

Ultra-filtration

- 2 x parallel UF trains, each in 40 ft containers
- 36 x hollow fibre UF membranes in each train

Reverse Osmosis

- 2 x parallel RO trains, each in 40 ft containers
- 2 stage design
- 84 brackish water membranes and 12 pressure vessels in each train

RESULT

The treatment containers were designed, built and commissioned at Ixom's manufacturing facility in South Australia enabling fast project implementation.

The plant produced 3 ML/d of permeate in specification for licensed discharge to the environment, enabling Peabody to reduce the inventory of stored water on site.

Ixom has operated and maintained the plant since 2012.

OPERATION & MAINTENANCE

Ixom was contracted to operate and maintain the plant in 2011 and continues to do so.

Since then, the feed water quality has deteriorated with increasing concentrations of suspended solids, iron and manganese. Ixom worked closely with Peabody to implement cost effective solutions which have allowed the plant to continue to operate and reduce the water inventory on site.

OTHER WTS SOLUTIONS



Mine Influenced Water Treatment Plant – 11 ML/d – UF & RO – QLD



Ixom Bullet™ self-bunded chemical dosing system (no requirement for expensive concrete bund)



Bore Water Treatment Plant for Boiler Feed Water
– 0.9 ML/d – RO – QLD



Backwash Wastewater Treatment Plant – 1 ML/d – UF – NSW

What's your challenge?

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