

# MINE INFLUENCED WATER TREATMENT FOR REUSE IN UNDERGROUND MINING OPERATIONS



## Key Facts

**Client:** Glencore

**Site:** Oaky Creek Coal (OCC) Mine

**Location:** Tieri, QLD

**Purpose:** To treat mine influenced water for re-use in underground operations in lieu of river water

**Technology:** Ultrafiltration, Reverse Osmosis, Post Treatment Water Stabilisation

### Supporting infrastructure supplied by Ixom:

- Chemtec™ Bulk Acid Storage
- Bullet™ Chemical Storage Systems
- Fully-automated CIP System
- Feed (2ML), Product (2 ML) and Process Tanks
- MCC, PLC & SCADA

**Capacity:** 6 ML/day permeate

**Feed Water Source:** Mine-influenced water (TDS up to 10,000 mg/L and SS up to 25 mg/L)

**Treated Water Quality:** TDS < 450 mg/L and non-corrosive water for re-use in underground mining equipment

**Contract Type:** EPC (Turnkey)

**Start-up:** 2014

### Benefits:

- The water treatment plant has reduced the mine's raw water usage by more than 1 billion litres each year (over 60% reduction in raw water usage)
- Help Glencore achieve its objectives for its Queensland coal operations to be able to handle weather extremes, use water more efficiently and recycle water wherever possible

### Coal Mine of the year award - 2014

For the construction of a purpose built Reverse Osmosis Water Treatment Plant, Glencore's Oaky Creek coal mine was one of three finalists for the Coal Mine of the Year Award in 2014

## BACKGROUND

Oaky Creek Coal's mine influenced water inventory was at critically high levels. The mine also had to import raw water from a nearby river for its underground operations. At these levels there was a risk of long wall operations being temporarily suspended due to safety and operational concerns. Dewatering is expensive, time consuming and hinders continuous operation. A solution was required to treat the mine influenced water and allow it to be used in operations thus minimising the volume of water imported, in turn driving down the water inventory.

Oaky Creek Coal engaged Ixom to design and construct a fully integrated water treatment plant.



## 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

The Ixom solution was a fully containerised plant. This included Ixom's high capacity BW4000 RO containers which can produce 3 ML/day of permeate and HF4000 UF containers which can produce 2.7ML/day of filtrate. The use of the BW4000 and HF4000 containers reduced capital cost by reducing the overall number of containers required.

The containerised modules were designed, built and fully commissioned at Ixom's manufacturing facility in Adelaide. This minimised the time, cost and risk associated with site installation and integration works.

### Ultra-filtration

- 4 x HF4000 UF containers
- Dow Hollow-fibre PVDF membranes
- Disc filter pre-treatment

The UF was designed to allow 6 ML/day permeate production with one UF train offline

### Reverse Osmosis

- 2 x BW4000 RO containers
- 22 bar operating pressure
- Dow Filmtec™ membranes

### Post-treatment

Calcite filters & sodium hydroxide dosing

## RESULT

On commissioning, the plant successfully met the performance specification and output, producing up to 6 ML/day of water for use throughout the mine site.

The plant has enabled Oaky Creek to reduce the amount of raw water imported to site by more than 60%, and reduce its water inventory.



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## What's your challenge?

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