CASE STUDY

Rapid Deployment of Relocatable Water Treatment Plant for Environmental Compliance

Objective:

XR3 was engaged to assist with lowering water inventory at a Queensland mine site dam system through discharge to the environment, meeting strict environmental compliance requirements efficiently and cost-effectively.

Challenges:

The project faced several significant challenges that required innovative solutions.

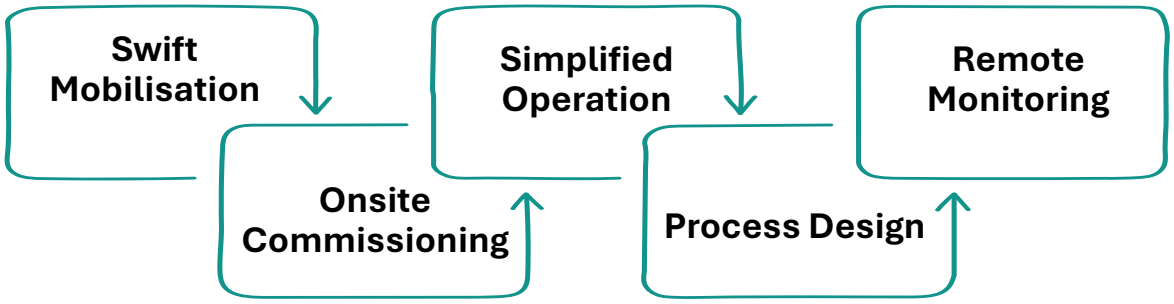
1. High calcium and sulfate levels.
2. Presence of heavy metals and organic contaminants.
3. Elevated micro-algae loads.
4. Remote site accessibility.

Compounding these issues was the site's remote location, which limited access to resources and demanded efficient logistical planning to ensure swift deployment and ongoing support.

Key Outcomes

- ✓ Water treatment plant deployed to site within **3 weeks**
- ✓ **1.5 Million Litres** of water treated per day
- ✓ Plant fully operational within **4 days** – minimising downtime
- ✓ Recovery rate of **70-75%**
- ✓ Electrical Conductivity (EC) of water reduced from 3000–4500 µS/cm to 200 µS/cm **(>90% reduction)**

Approach



01 Swift Mobilisation

The relocatable water treatment plant was deployed to the site within 3 weeks of contract initiation.

02 Onsite Commissioning

The plant was fully operational within 4 days of arrival on site, ensuring minimal downtime.

03 Simplified Operation

The plant's integrated control system streamlined the management of the plant and auxiliaries.

04 Process Design

Treatment capacity: 1.5 MLD (million liters per day).
Process: Multi-Media Filtration (MMF) followed by Reverse Osmosis (RO).
Recovery rate: 70–75%.
Output water quality: Electrical Conductivity (EC) reduced from 3000–4500 µS/cm to 200 µS/cm.

05 Remote Monitoring

Enabled real-time oversight and reporting, reducing onsite management demands.

Benefits

Cost-Effectiveness	Compared to the large cost of a new plant, our team's solutions delivered significant savings for the client.
Efficiency	Rapid deployment and commissioning minimised project delays.
Flexibility	The relocatable plant design allowed for easy scalability and relocation to meet evolving needs.
Operational Support	Remote monitoring improved plant performance and ensured smooth operations over a 12-month+ duration.
Environmental Compliance	Treated water met strict environmental discharge standards.

Conclusion

This case study highlights the effectiveness of XR3's relocatable water treatment solutions in delivering cost-effective, efficient, and environmentally compliant outcomes. By leveraging cutting-edge technology, rapid deployment capabilities, and comprehensive operational support, XR3 enabled the client to meet stringent environmental discharge requirements without the need for costly, permanent infrastructure.

The flexibility of the solution ensured seamless integration into existing site operations, while its modular design allowed for quick scaling to meet changing water treatment demands.

If you’re looking to experience innovation and excellence at your business, get in touch with us today.

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