

Case Study

Ensuring Safe, Sustainable Water for Poultry Feed Operations



The Problem

For food-grade production, water quality isn't negotiable. A leading poultry feed manufacturer in South Australia relied on the Murray River for its operational water, a critical but highly variable source. Seasonal fluctuations, particularly "Black Tide" events, posed serious risks to water quality, operational efficiency and compliance.

Key Issues Identified

High Turbidity & Suspended Solids: Seasonal Black Tide events caused elevated turbidity, rendering the water unsuitable for food-grade applications

Organic Matter Fluctuations: Inconsistencies in organic load affected taste, odour and increased microbial risk

Strict Compliance Standards: The site was required to meet the Australian Drinking Water Guidelines (ADWG) to ensure feed safety

Operational Constraints: Manual system oversight and frequent maintenance were straining productivity

To maintain quality, safety and efficiency year-round, the business required a robust and fully automated water treatment solution designed to perform — no matter the season.

The Solution:

Waterform Technologies designed and installed a Barrier-FB Advanced Water Treatment Plant, delivering a turnkey, low-maintenance solution that seamlessly integrated with the existing infrastructure.

Key system features included:

- **Coagulation & Clarification:** A lamella clarifier with automatic sludge removal and high speed mixing ensured optimal solids separation and flocculation.
- **Ultrafiltration (UF):** 5 × 60m² INGE Multibore UF membranes provided reliable pathogen removal and consistent output. Automated backwashing and chemical-enhanced cleaning maintained performance.
- **Granular Activated Carbon (GAC) Filtration:** Enhanced water taste and odour via an automatic backwashing carbon filtration system.
- **Chlorination & Disinfection:** A flow paced chlorine dosing system, with real-time residual monitoring, ensured continuous microbial control and ADWG compliance.
- **Reverse Osmosis (RO) for Boiler Feed:** 9 × Hydranautics ESPA 8040 membranes provided high-efficiency water recovery (>80%), with an integrated Clean-in-Place (CIP) system to sustain optimal performance.
- **Smart Automation & Remote Monitoring:** Full SCADA PLC integration and 24/7 remote iSiteControl monitoring enabled real-time system insights, fault detection and minimal operator intervention.
- **Containerised Infrastructure:** The space saving, modular design included a backup water supply system to maintain continuity during maintenance or outages.

The Outcome:

The Barrier-FB system delivered immediate and long term benefits across operational, environmental and compliance areas:

- **Reliable ADWG Compliance:**
The plant consistently delivers high quality, potable water for feed processing, supporting safe, compliant production.
- **Increased Efficiency:**
Automation and remote monitoring have significantly reduced labour needs and streamlined operations.
- **Sustainability Gains:**
Improved water recovery rates and energy efficient processes support the company's environmental objectives.
- **Cost Reductions:**
Lower chemical usage, minimal maintenance and reduced reliance on external water treatment inputs have led to measurable savings.
- **Future Proof Design:**
With modular scalability, the system is ready to grow alongside future production demands.

Through this solution, the poultry feed manufacturer secured a dependable, scalable, and sustainable water treatment system—ensuring compliance and operational confidence, season after season.



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