

CASE STUDY



REPLACED ORIGINAL SCREEN PRONE TO BLOCKING

PROJECT SUMMARY

A regional water authority located in the Central West region of New South Wales, draws its community's water supply from the Lachlan River. For years, the Shire relied on submersible macerator pumps that drew directly from an exposed wet well beside the river. This configuration was prone to frequent clogging, high labour requirements, and escalating operational costs due to debris and sediment ingress.

To overcome these challenges, AWMA supplied a **self-propelled, self-cleaning intake screen** that transformed the authority's raw water operations. **The innovative system eliminated daily manual cleaning, improved water quality, and reduced maintenance requirements, to achieve full return on investment within the first year of operation.**

CLIENT TESTIMONIAL

"The AWMA self-propelled, self-cleaning screen eliminated daily cleaning, supply disruption, and significantly improved water quality. We saw ROI within days and immediately ordered a second screen for use in another location."

- Water Authority Representative



WATER EXTRACTION VIA EXPOSED WET WELL

PREVIOUS SCREEN



DECOMMISSIONED ORIGINAL SCREEN



SCREEN MANUFACTURE

REPLACEMENT SCREEN



SCREEN INSTALL

PROJECT OBJECTIVES

The passive screens utilised on the town's water supply intake were prone to continuous blockages. The project aimed to modernise its river intake to ensure a reliable and cost-effective water supply system. The project sought to minimise operational and maintenance costs while improving the quality of raw water and enhancing the reliability of the intake. Ultimately, the upgrade was designed to provide uninterrupted service to the community and deliver a long-term, sustainable solution for the shire's water infrastructure.

BACKGROUND & CHALLENGES

The existing intake relied on exposed wet wells adjacent to a major natural waterway, which experienced continual debris and sediment build up. Over time, this caused frequent clogging and reduced pump performance.

Daily manual cleaning was required, involving three personnel and lifting equipment a process that was labour-intensive, costly, and hazardous. Operational downtime became routine, power consumption increased, and additional debris loading impacted the downstream treatment plant.

These inefficiencies led to high operational expenditure (OPEX) and reduced system reliability, prompting the council to seek a modern, innovative solution

SOLUTION DEVELOPMENT & IMPLEMENTATION

Through collaboration with AWMA, the authority installed a **Self-Propelled, Self-Cleaning Cylinder Screen**, rated for **12 ML/day**, providing modern fine screening as the first line of defence at the intake.

The screen is constructed from a **1 mm aperture, grade 316 stainless steel wedge wire screen medium** and features **three integrated brushes** that provide continuous self-cleaning without the need for external power, air, or water. With an internal propeller driven system the screen operates autonomously at a **low approach velocity (<0.1 m/s)**, preventing debris accumulation and protecting aquatic life from entrainment.

The selected aperture and low-velocity design ensures consistent raw water quality entering the treatment process, minimising downstream fine screening challenges and improving overall plant performance. The self-cleaning intake screen was directly flange-mounted onto the base of the existing pump, allowing straightforward installation with minimal civil works. Since commissioning, the system has maintained uninterrupted operation, eliminated manual cleaning, and improved the quality of raw water entering the treatment plant.

RETURN ON INVESTMENT

Implementation of AWMA's self-propelled, self-cleaning intake screen eliminated the need for daily maintenance and reduced energy consumption through unobstructed pump operation. The water authority recorded savings of approximately **1,560 labour hours per year**, equivalent to around **\$93,600 in annual labour cost reduction**.

Combined with improved operational efficiency, these savings delivered **return on investment in under 12 months**, while continuing to provide long-term financial and environmental benefits.

CONCLUSION

The AWMA self-cleaning intake screen has revolutionised the authority's raw water operations by delivering a **low-maintenance, cost-efficient, and environmentally sustainable solution**. The upgrade improved water quality, reduced operational demands, and ensured reliable service delivery to the community.

This project stands as a benchmark example of how AWMA's engineered screening solutions deliver measurable return on investment while enhancing the resilience and sustainability of municipal water infrastructure.

SUMMARY OF KEY DETAILS

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| CLIENT: | Regional water authority | DESIGN FLOW RATE: | 12 ML/day |
| LOCATION: | NSW | SCREEN APERTURE: | 1mm aperture |
| WATER SOURCE: | River-side Wet Well | SCREEN TYPE: | Self-propelled, self-cleaning cylinder screen |
| ENVIRONMENTAL COMPLIANCE: | Fish Screen Guidelines | MATERIAL: | 316 stainless steel wedge wire |
| OPERATIONAL BENEFIT: | Eliminated daily maintenance and reduced energy consumption | MOUNTING ARRANGEMENT: | Flange mounted directly onto the pump |
| RETURN ON INVESTMENT: | < 12 months | RETRIEVAL SYSTEM: | Manual retrieval |