

Case story

Water treatment plant, Sydney

# Aldec G3 decanters for sludge dewatering slash Sydney Water's electricity usage at Cronulla

**Replacing ageing machinery with Alfa Laval Aldec G3 decanters delivered measurable improvements at Sydney Water's Cronulla treatment plant.**

Electricity use fell by 47%, CO<sub>2</sub> emissions by 173 tonnes annually, maintenance demands eased and fewer truck journeys were needed to transport biosolids from the site, highlighting the impact of modern sludge dewatering technology on utility performance.



## Case story

### Water treatment plant, Sydney

When Sydney Water sought to replace old dewatering equipment at its Cronulla facility, the priority was to install newer technology with minimal disruption to the existing plant configuration.

The specification focused on volumetric and hydraulic capacity rather than moisture targets, ensuring the plant could meet current demand and accommodate future population growth.

Following a competitive tender process, the utility selected Alfa Laval Aldec G3 decanters, which since commissioning have exceeded performance expectations in terms of energy efficiency, throughput and sludge dewatering performance.

#### Lower energy demand through higher throughput

Sludge dewatering is one of the most energy-intensive stages of wastewater treatment, making energy efficiency a key equipment selection criterion. At Cronulla, operational results exceeded initial projections.

**“The power reduction presented to us was 30–40%, but in reality we’re seeing savings of more than 47% on the decanters alone. It’s very impressive.”**

**Mark Ziogas**  
Production Officer at Sydney Water

According to Sydney Water, the previous dewatering decanters were rated at 55 m<sup>3</sup>/h but typically operated at around 21 m<sup>3</sup>/h in order to maintain capture performance, requiring approximately 21 hours of daily operation.

The new Aldec G3-95 units now operate at around 40 m<sup>3</sup>/h without compromising capture, reducing runtime to roughly 10.5 hours per day.



47% reduction in decanter electricity consumption



173 tonnes of CO<sub>2</sub> emissions avoided per year



Annual power costs reduced from AUD 73,139 to less than AUD 20,000

As a result, annual electricity costs for dewatering fell from more than AUD 73,000 to below AUD 20,000 – a total reduction of 73.4%, equivalent to annual savings of AUD 53,639.

This level of power reduction corresponds to approximately 173 tonnes of CO<sub>2</sub> emissions avoided annually, comparable to removing nearly 40 cars from the road.

#### Overall, the replacement delivered:

- 47% reduction in decanter electricity use
- 73.4% reduction in annual dewatering power costs
- 173 tonnes of CO<sub>2</sub> emissions avoided annually
- AUD 55,000 transport savings for each 1% increase in biosolids dryness
- Estimated payback period of less than four years

#### Lower maintenance, higher uptime

The Aldec G3 decanters’ sealed internal bearings have also reduced maintenance requirements and improved reliability.

Our old machines had to be greased weekly,” says Ziogas. “Now we can focus on more valuable maintenance and operational tasks.” Sydney Water estimated maintenance savings of approximately AUD50,000 per year, with internal bearings remaining service free after 8,000 operating hours.

#### Drier sludge, lower transport costs

Improved cake dryness has delivered further economic and environmental benefits. At Cronulla, every 1% increase in solids content reduces biosolids transport costs by approximately AUD55,000 per year.

With our old machines, we were lucky to achieve 18% cake solids,” noted Ziogas. “With the Alfa Laval decanters, we reached 20% immediately and can now get close to 22% through process optimisation.” Higher solids content reduces haulage volumes, lowers disposal costs and decreases the associated environmental footprint.

#### Easy retrofit, future-ready capacity

The compact footprint and compatible configuration of the Aldec G3 units enabled a straightforward installation with minimal modifications to existing pipework. Sydney Water replaced three legacy decanters with two new machines, reducing both capital expenditure and ongoing maintenance costs while retaining capacity for future population growth.

It fitted into our existing footprint, and the feed and cake discharge points were essentially the same, so we didn’t have to rearrange pipework significantly,” explained Ziogas. The installation also created a safer, more spacious working environment.

#### Local support, long-term partnership

A further differentiator was Alfa Laval’s local service presence in Australia. Ready access to spare parts, responsive technical support and overhaul capability provided operational assurance throughout the asset lifecycle.

**“The fact they are local is very reassuring. If we need urgent support, they are close by and ready to respond.”**

A decade long collaboration between Alfa Laval and Sydney Water continues to demonstrate the value of long term partnership, sustained resource efficiency and shared commitment to operational excellence.



#### Contact Alfa Laval

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