

CASE STUDY

project: Wastewater Process Optimisation
product: Coagulants, Flocculants, pH control
industry: Food and Beverage
location: NSW



Background

A dairy processing facility was experiencing increasing pressure on its wastewater treatment infrastructure due to ongoing production growth. Rising volumes of high-strength wastewater were placing strain on downstream biological treatment processes, creating potential risks to compliance, operational stability, and future expansion.

The wastewater stream was highly variable, characterised by elevated solids and nutrient loads, significant whey content, and extreme pH fluctuations ranging from 3 to 11. These conditions increased the risk of process instability and reduced treatment efficiency. Protecting the existing biological treatment system while accommodating future growth became a critical priority for the client. Rather than immediately investing in additional downstream treatment capacity, a more sustainable and cost-effective upstream optimisation approach was required.

WTS solution

WTS partnered with the client to develop a process-driven solution focused on improving upstream control and stabilising the wastewater prior to treatment.

Instead of simply installing additional equipment, WTS identified that the key to performance improvement lay in optimising process control.

A tailored strategy was implemented to manage variability at the source, improve chemical efficiency, and enhance overall treatment stability. This included intelligent equalisation of acidic and alkaline waste streams, precise pH control, and optimised coagulation, flocculation, and flotation processes.

System visibility was also enhanced through integration with the client's PLC/DCS, enabling better monitoring and control of critical treatment parameters.

WTS key solutions

- Tight pH control (~6–7) to optimise chemical dosing and maximise treatment efficiency
- Intelligent equalisation by blending acidic and alkaline wastewater streams prior to chemical correction
- Controlled coagulation and flocculation to improve solids and nutrient removal
- Optimised flotation (DAF) control for consistent separation performance



DAF input



DAF output

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water
treatment
services

Results and Benefits

- **Sustainability.** Reduced load to downstream biological treatment by removing variability and improving upstream treatment performance
- **Operational efficiency.** Improved process stability through tighter control of pH, solids, and nutrient loads
- **Cost optimisation.** Lower chemical consumption and avoided immediate capital expenditure on additional treatment infrastructure
- **Future readiness.** Established a scalable platform to support ongoing production growth and wastewater capacity increases.
- **Process insight.** Enhanced system visibility and control allowing operators to better understand and optimise treatment performance



pH control