

CASE STUDY



PROJECT HIGH EFFICIENCY DAF FOR CHICKEN PROCESSOR

PRODUCTS Gas-Energy Mixing Dissolved Air Flotation (GEM-DAF); Rotary Drum Screen (FTR); Dewatering Screw Press (DSP); Chemical Dosing (CD)

INDUSTRY Food & Beverage

LOCATION Perth, Western Australia

BACKGROUND

A chicken processing facility was facing serious wastewater treatment challenges at its Perth site. Its undersized and underperforming system was no longer sustainable, causing a health & safety hazard and an odorous working environment. The poor performance of the waste water system was affecting production capacity and site restrictions limited space for a new plant. The customer engaged MAK Water in an extended consultation process, looking for improved flotation and flocculation technology.

[Clean Water Technology's \(Gas Energy Mixing\) GEM®](#) system is an innovative and patented approach to wastewater treatment. This superior flocculation and floatation system delivers results significantly better than conventional Dissolved Air Flotation (DAF) and alternative wastewater treatment technologies. The GEM-DAF System removes higher levels of contaminants than conventional DAF systems, using less chemicals, while generating significantly drier sludge. A GEM-DAF System footprint can be over 50% smaller than a typical DAF of similar capacity.

The GEM System uses unique hydro-cyclone technology in the Liquid, Solid, Gas Mixing Heads (LSGM) In these heads, chemistry is injected and air is dissolved into 100% of the wastewater stream while creating a vortex. The random flocculation and flotation process of a DAF system becomes a managed process in the GEM System resulting in the removal of more contaminants and drier sludge.

SOLUTION

65m³/h Gas-Energy Mixing Dissolved Air Flotation (GEM DAF) based plant, with pre-screening and Dewatering Screw Press

MAK WATER KEY SOLUTIONS

- Rotary Drum Screen (FTR) inlet screen
- GEM-DAF-65 clarification plant to treat remaining suspended solids, with over 30% space saving over traditional DAF technology
- Chemical dosing: pH adjustment, disinfection, coagulant & flocculant
- Dewatering Screw Press (DSP-301) for reduced solids disposal frequency and cost
- Innovative packaging - installing FTR and DSP on elevated platform above the bunded chemical storage area
- Onsite plant construction, commissioning and operator training
- Ongoing service and maintenance contract



GEM-DAF and access platform during installation on site.



Rotary Drum Screen (FTR) left, Dewatering Screw Press (DSP), centre.

RESULTS AND BENEFITS

- **Safety.** Overflows, and associated hazards eliminated.
- **Sustainability.** Achieves and exceeds required trade wastewater compliance with local treatment authority.
- **Cost.** Reduced disposal and chemical costs with GEM DAF technology
- **Environmental improvement.** Improved wastewater treatment system improves the working environment, and foul odours.
- **Technical Support.** Consultation with all parties throughout the process and ongoing plant service & maintenance.



Above- view of the GEM-DAF component, showing one of the removable cover grid sections,



Influent solids screening - Rotary Drum Screen (FTR) installed on elevated platform. Screenings drop into a bin below the elevated deck.