

CASE STUDY



PROJECT SLUDGE DEWATERING FOR HEALTH FOOD COMPANY

PRODUCT Dewatering Screw Press (DSP)

INDUSTRY Food & Beverage

LOCATION New South Wales

BACKGROUND

A major health food company, which was going through substantial growth in production, experienced capacity problems in their wastewater treatment system. This included the handling of waste activated sludge (WAS) solids from their lagoon-based activated sludge biological process. The site was using a belt filter press for dewatering the WAS, which had become undersized for the increased capacity requirements, and demanded frequent operator input for effective operation. Management of the dewatered cake was also labour intensive and unsuitable for the increased sludge quantities, leading to increased operating costs.

The company commissioned MAK Water to conduct a 2-week sludge dewatering trial using our Dewatering Screw Press (DSP) pilot plant, to assess the suitability of this technology, and to determine the capacity and performance of a full-scale DSP and expected polymer consumption. This trial was successful and the customer subsequently ordered our largest model, the DSP-403.

SOLUTION

MAK Water was selected to provide a Dewatering Screw Press (DSP) as well as dewatered cake conveying and bin-loading system c/w standalone control system. Liquid waste activated sludge is pumped directly from the biological process lagoon into a coagulation & flocculation mixing unit, then into the DSP. The dewatered cake discharges into an elevating screw conveyor, which feeds a horizontal outloading screw conveyor with automated gates for outlet ports, which allows for a bin to be filled evenly, and to maximum holding capacity, with no operator input.

DESIGN FEATURES

- Single-step sludge dewatering from as low as 4 g/L liquid sludge concentration to >12% dry solids cake without the need for pre-thickening
- Dewatering capacity up to 420 kg/h dry solids
- Dewatered cake conveying & distribution capacity of up to 2.5 m³/h
- Fully automated operation, with touch-screen operator interface & control
- High degree of operational flexibility and turn-down with incorporated flow control, flocculation, thickening and washing systems

RESULTS AND BENEFITS

- **Performance:** Producing dewatered cake of 12-13% dry solids content at >95% solids capture rate
- **Reduced disposal costs:** Effective filling of bin has resulted in significant reduction in frequency of emptying bin for off-site disposal of dewatered cake.
- **Technology benefits:**
 - Simple installation & operation
 - Low energy consumption
 - Low wash water consumption
 - Simple and low maintenance



Dewatering Screw Press DSP-403 installed.



Dewatering Screw Press DSP-403 with automated screw conveyor and outloading system.