

# CASE STUDY



**PROJECT** SLUDGE DEWATERING FOR CHICKEN HATCHERY  
**PRODUCT** Dewatering Screw Press (DSP) & Polymer Preparation System (ASP)  
**INDUSTRY** Food & Beverage  
**LOCATION** Victoria

## BACKGROUND

A chicken hatchery in Victoria, was experiencing odour problems emanating from their wastewater treatment lagoons, with pressure from the regulator to address the issue. The site operates two lagoons in series that receive the wastewater generated from cleaning out the chicken hatching sheds. The lagoons operate as facultative systems, i.e. no mechanical equipment is installed to provide mixing and/or aeration. Following years of operating the lagoons without removing any sludge from the system, Lagoon 1 had significant accumulation of settled sludge. This resulted in odours from anaerobic breakdown of settled solids. Solids from Lagoon 1 were carrying over into Lagoon 2, causing the effluent to contain high levels of solids. Effluent from Lagoon 2 is typically irrigated on the property. However, due to prolonged unusually wet conditions at the time, poor effluent quality and odours from the site, irrigation was not possible. The site could not take the lagoons offline to allow for draining, drying and desludging of the lagoons.

## SOLUTION

MAK Water was engaged to provide a solution to reduce and maintain sludge levels in the lagoons on an ongoing basis, while the lagoons remain online. MAK Water implemented a 2-step batch process for sludge dewatering.

Step one sees settled sludge from Lagoon 1 withdrawn and pumped into a sludge tank for temporary storage.

When the sludge tank is full, step two sees the liquid sludge is pumped into MAK Water's Dewatering Screw Press model DSP-201. Polymer solution is pumped from MAK Water's automatic polymer preparation system model ASP-2C into the DSP to provide flocculation prior before the sludge is dewatered into spadable cake. Both DSP and ASP have standalone control panels that are integrated for simple plant operation. Dewatered cake discharges into a bin for offsite disposal as required.

## DESIGN FEATURES

- Dewatering plant can be operated as required to maintain lagoon sludge levels thereby mitigating odours without taking the lagoons offline
- Simple automated solution with low operator input
- High degree of operational flexibility and turn-down capacity, with incorporated flow control, flocculation, thickening and washing systems

## RESULTS AND BENEFITS

- **Performance:** Producing dewatered cake of >15% dry solids content at >95% solids capture rate
- **Improved effluent quality:** By reducing accumulated sludge from Lagoon 1, the quality of Lagoon 2 effluent has improved to allow onsite effluent irrigation as practiced previously
- **Technology benefits:**
  - Simple installation & operation
  - Low energy consumption
  - Low wash water consumption
  - Simple and low maintenance



*DSP and ASP during installation, prior to erection of protective enclosure*



*Installing the protective enclosure*