

# CASE STUDY

**PROJECT** SLUDGE DEWATERING FOR TUNNELLING PROJECT

**PRODUCT** Filter Press (FP)

**INDUSTRY** Infrastructure & Urban Development

**LOCATION** New South Wales



## BACKGROUND

As part of the largest renewable energy project in Australia to provide on-demand energy and large-scale storage, extensive tunnelling was required to connect two existing dams with a new underground power station for the pumped hydro-electric scheme. The tunnelling process generates large volumes of construction wastewater that needs treatment before being discharged into sensitive alpine streams within a national park. Given the stringent environmental constraints and monitoring requirements, the client required a reliable water treatment solution to meet its sustainability goals and ensure compliance.

MAK Water was selected as the solutions provider to design, manufacture, and commission two packaged water treatment plants to provide treatment of the tunnelling construction wastewater. The sludge generated from water treatment process, is dewatered onsite, to minimise transport costs prior to disposal in land-fill.

## SOLUTION

Two custom-built 1.3 ML/d water treatment plants, one for each tunnelling location, with the main processes packaged into sea containers. This design enabled 24/7 operation in alpine conditions including high winds and sub-zero temperatures. The treatment train for both plants consist of Static Bow Screen (model GST), buffer tank with mixing and chemical conditioning, Lamella Clarification (LC), Ultra-filtration (UF), Brackish Water Reverse Osmosis (BWRO) and Filter Press (FP) for sludge dewatering.

## MAK WATER KEY SOLUTIONS

- Overhead Filter Press (FP) with 30 plates of 800mm x 800mm, automatic plate transport system for quick/effective cake release
- Fully containerised system housing Filter Press (FP) with Control Panel and all associated services including air compressor with receiver and dryer, plus ambient air heating & cooling systems
- Container mounted on a concrete bunker, for easy storage and collection of dewatered cake
- Fully automated solution with high degree of operational flexibility and turn-down requiring low operator input.

## RESULTS AND BENEFITS

- **Performance:** Capable of treating 15 L/s of LC thickened sludge at 1% dry solids content and producing dewatered cake of minimum 65% dry solids content and 30mm cake thickness
- **Smart Design & Ease of Operation:** The containerised system installed on top of a concrete structure, saves space, allows for weather-proof temporary storage of Filter Press cake discharge into a bunker and easy access for removal of cake for disposal
- **Fast delivery:** Packaged solution allows for fast fabrication and testing to occur in-factory, enabling the client to achieve tight project timelines



*Containerised Filter Press mounted on top of concrete bunker for dewatered cake storage & collection*



*Filter Presses prior to containerisation*