

## **Dissertation Title**

# **A Field Study of Beaching Behaviour and the In-situ Moisture Regime of Tailings during Active Deposition**

## **Abstract**

This research investigated the in-situ beaching and drying behaviour of platinum tailings in relation to proposed mechanisms described in literature and predicted from laboratory behaviour. Successive field depositions allowed the impact of finer grinds, slurry density and beach length to be investigated and compared to flume tests, indicating beach length to be a key parameter. By monitoring gravimetric water contents following deposition the quantity of water released during sedimentation showed that the beach acts as a natural “machine” thickener. After sedimentation the water content was observed to decrease, at a rate correlated with Reference Evapotranspiration, reaching a steady state condition. Field capacity values determined from laboratory experimentation and numerical modelling correlated closely with this steady state condition; restricting further moisture loss due to the relative abundance of moisture to replenish deficits. Liquidity indices demonstrated that as a result only the head of the beach dries sufficiently to impound the waste.

## **Keywords**

Tailings, Moisture Loss, Beaching Behaviour, Strength Gain, Reference Evapotranspiration