

# CASE STUDY



project: Mining Clarifier Performance  
product: Coagulants  
industry: Mining  
location: Far North Queensland

## background

A sand mine required low turbidity in its wastewater discharge stream in order to meet the requirements of being located in an environmentally sensitive area. The site requires strict adherence to environmental requirements.

## approach

- Test cationic coagulants for clarification efficacy and conduct product dosage versus streaming current charge titrations to determine the optimal product based on efficacy and dosage requirement.
- Test flocculant range (cationic, anionic and non-ionic) to determine which is best suited to aid in increasing particle size, settling rate and thus, increase solution clarity at the thickener and dam.

## WTS solution

- Based on the lab work and on-site trials, WTS recommended a high molecular weight organic coagulant (WTS 8-CC997) and specialised water in water based anionic flocculant (WTS 8-AD7310)
- Organic coagulant and water in water based anionic flocculant for direct dosing
- Trial to determine mixing time and energy required (to optimize the thickener process)
- Streaming current detector (SCD) control of coagulant pump speed (dose rate) to improve performance of the thickener through real-time adjustment of dose rate
- Process improvements including turbidity meters before & after clarifier. Advised optimal coagulant and flocculant dosage points. Fitted offtake sampling points for SCD controller monitoring.



Thickener at the processing plant

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## results and benefits

- **Environmental Compliance.** Discharge achieves discharge requirements.
- **Technical Support.** Expert advice and consultation with all parties throughout the process and ongoing plant service and support by WTS.
- **Optimised process.** We took a whole-of-system approach, installing monitoring & dosing hardware to make best use of the chemistry solution.



Optimised dosing at the thickener producing low turbidity overflow water