

Thickener Optimization CASE STUDY



THE CHALLENGE

- A concentrate thickener on mineral processing plant in Western Australia was impacting production due to
 - Excess flocculant causing high rake torque and downstream performance issues, such as filter cloth blinding
 - Inconsistent underflow density was reducing throughput
 - High degree of process variability due to spongy and sticky bed characteristics

THE SOLUTION

- Installation of the Thickener Optimization App gave a real time view of thickener parameters, thickener feed and rake torque.
- This enabled flocculant usage to be reduced and high rake torque events eliminated.
- An optimized thickener also gave improvements in downstream underflow filter performance



THE RESULTS

- The thickener now runs at the optimal density and throughput for downstream processes, which has lead to
 - Rake torque reduction by 18%
 - Rake torque events have significantly reduced due to optimization and advanced warning of events through App prediction
 - A reduction in Flocculant usage by 16%
 - Overflow water is cleaner (less solids) benefiting upstream processes



Efficient Water Usage



Lower Chemical Usage



Cost Savings



Higher Recovery

BASF
We create chemistry

BASF Intelligent Mine powered by
IntelliSense.io

BASF Intelligent Mine enables a large minerals producer in Western Australia to reduce process disruptions by 18% and flocculant consumption by 16%

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* Assumptions for energy savings: energy consumption for SW RO desalination plant is 4.4 kWh/m³ of water produced; energy savings due to less pumping of water is calculated with $U_{pot} = \text{mass of water} \times g \times \text{Height}$, the assumed efficiency of the pumps is 80%