



THICKENER CIRCUIT OPTIMISATION STABILITY PROJECT

Gold - Copper Mine, Chile

PROJECT OBJECTIVE

The project objective for IntelliSense.io was to model and optimise the thickener circuit in real time, identify the root cause of variability and continuously predict set-point recommendations for optimal predictive process control.

CHALLENGES

The existing thickener circuit Expert System didn't enable continuous set point changes based on the type of materials entering the thickener - resulting in an inability of the operations team to take pre-emptive action to minimise variance at the circuit, with action being taken only after the event. This resulted in a low underflow % solids and water recovery, and high flocculant consumption.

INTELLISENSE.IO OUTCOMES

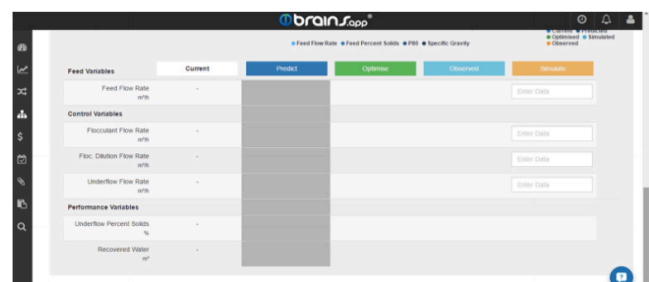
The IntelliSense.io Thickener Circuit Optimisation application was implemented at the mine. The project integrated data from SCADA & other control systems (including upstream data) with advanced statistical data modelling, machine learning algorithms and first principle models to derive a digital model of the thickener circuit that can predict and simulate future performance of the circuit under various feed conditions and deliver continuous optimised control recommendations that result in;

- Delivery of predicted material composition and mineralogy input to the thickener circuit.
- Stable underflow % solid.
- Online thickener circuit simulator.

These recommendations were supplied as self-service dashboards and reporting allowing different types of users (operations, engineers & management) to source information based on their needs. An on-premise version of the application is deployed to deliver optimisation set points continuously to existing expert / control system.

BENEFITS

- Decreased variability in the thickener circuit operation.
- Enhanced water recovery at the thickener circuit
- Reduced equipment downtime due to stricter torque constraints.
- Next-generation virtual sensors which replace crucial missing instrumentation.
- Increased operational staff availability by reducing the time to collect previously siloed data.
- Increased internal operator training through the brains.vos simulator.
- Payback period shorter than 12 months with projected direct savings calculated at \$400k in the first year alone.



NO CAPEX. NO SOFTWARE. JUST INSIGHT.