

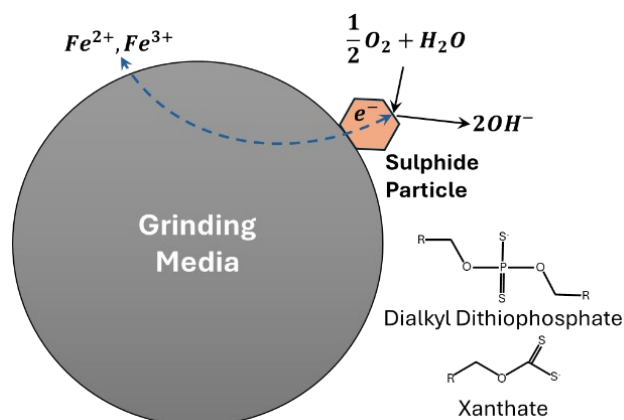
Optimizing Flotation Pulp Conditions at Red Chris Mine

THE OPPORTUNITY

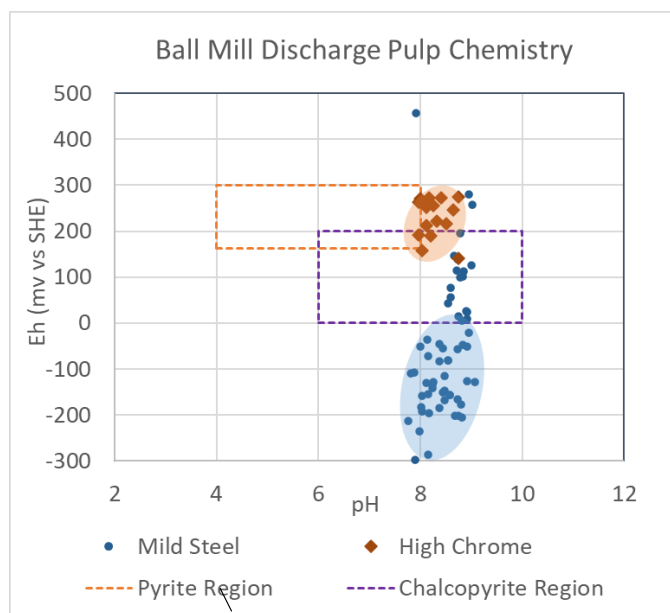
Pulp chemistry measurements in the Red Chris Ball Mill confirmed that the presence of higher pyrite concentrations in plant feed translated to highly reducing conditions in the ball mill which are unfavourable for gold and copper recovery.

The galvanic interaction consumes oxygen from the slurry, and releases hydroxide, iron and copper ions into solution.

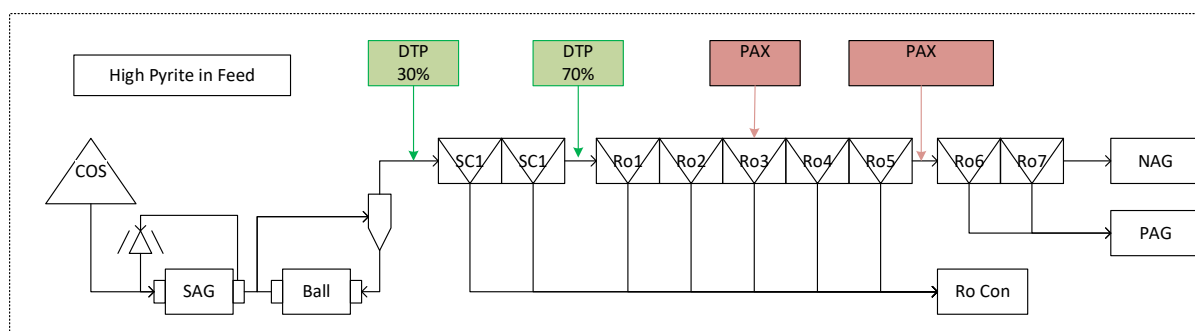
High pyrite concentrations require high pH in the cleaning circuit to depress pyrite which is further detrimental to gold recovery.



OUR SOLUTION



- ✓ Meticulous measurements of the pulp chemistry (Eh, pH, DO, EDTA extractions) lay the foundation for improvement.
- ✓ Implementation of standardised collector addition strategy to maximise the synergistic effects of mixed collectors.
- ✓ Added collector at optimum points according pulp-chem conditions (moved out of grinding).
- ✓ Replaced the mild-steel forged grinding media in the ball mill with high chrome steel to reduce the reactivity in the ball mill by mitigating the galvanic interactions.
- ✓ Eh and DO conditions vastly improved, as well as a reduction in EDTA extractable iron.



Collector dosing strategy developed to harness the synergistic effects of using multiple collectors (DTP – di-thiophosphate and PAX)

THE BENEFITS

GRINDING MEDIA CONSUMPTION

26%

Decrease in grinding media consumption

LIME CONSUMPTION

43%

Decrease in lime consumption

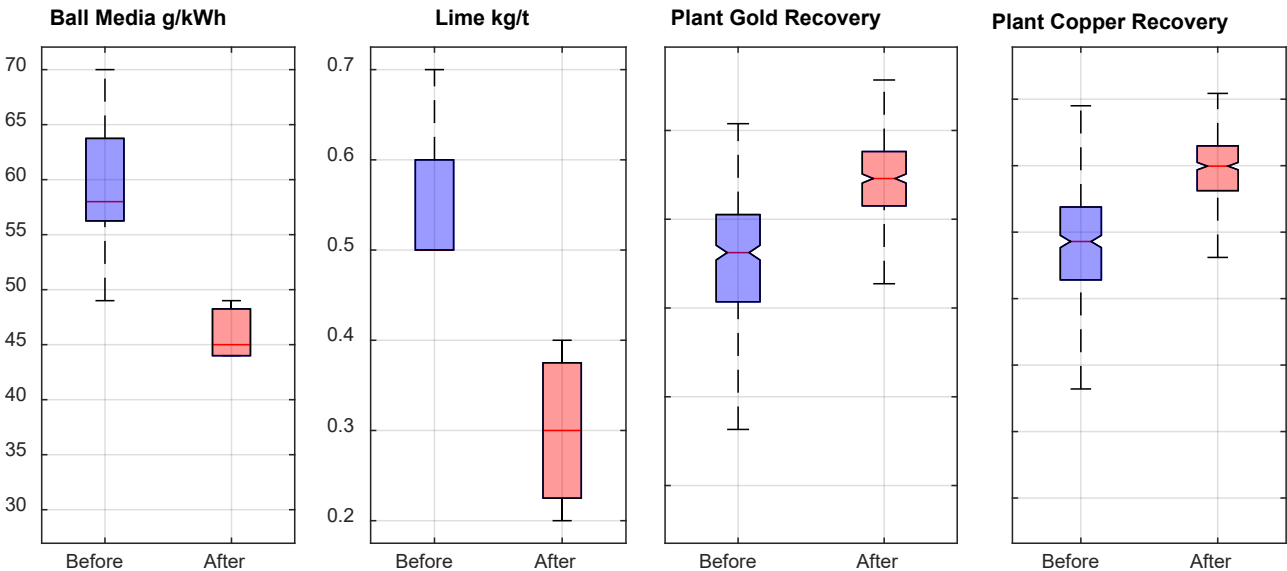
GOLD & COPPER RECOVERY

2.3% Au / 0.7% Cu

Higher copper and gold recoveries have consistently been achieved

LOWER pH REQUIREMENTS

Lower pH required for rougher and cleaner stages to achieve conc. grade which is partly due to Cu activation of pyrite during grinding



Read more in the proceedings



Seaman, D, Johannson, J, Baldock, J and Seaman, B. (2024) *Optimizing Flotation Pulp Conditions to Improve Recovery at Newmont Red Chris Mine*. 16th AUSIMM Mill Operators' Conference, Perth Australia, 21-23 October, 2024.