

# Improved recovery through changes in operating philosophies at IGO's Nova Operation

*Z Hearne<sup>1</sup>, G Gomes-Sebastiao<sup>2</sup>, J Crow<sup>3</sup>, N Vines<sup>4</sup>*

1. Plant Metallurgist, Independence Group NL, IGO Nova, Suite 4, Level 5, South Shore Centre, 85 South Perth Esplanade, Zac.Hearne@igo.com.au
2. Control Systems Engineer, IGO Nova, Suite 4, Level 5, South Shore Centre, 85 South Perth Esplanade, Greg.Gomes@igo.com.au
3. Control Systems Engineer, IGO Nova, Suite 4, Level 5, South Shore Centre, 85 South Perth Esplanade, Jody.Crow@igo.com.au
4. Executive Director, Strategic Metallurgy, 23 Belmont Avenue, Belmont, Nick.Vines@strategicmet.com

## ABSTRACT

Independence Group's Nova Nickel-Copper-Cobalt operation (Nova) transitioned from commissioning into commercial production in July 2017. The operation is based in the prospective Fraser Range of Western Australia, approximately 130km east of Norseman and produces separate Copper and Nickel sulfide concentrates.

As ore throughput and feed grades began approaching the life-of-mine production plan, copper metal recoveries began to diverge from theoretical optimums. A revision of the operating philosophy in a key flotation train was undertaken and an automated reagent dosing system was introduced. The changes implemented as a result of this analysis have underpinned an increase in final copper metal recovery, which is now in line with theoretical recoveries.

The modifications to the core control strategy were aimed at limiting the recovery of penalty elements into the cleaning circuit to allow a higher recovery of final concentrate whilst continuing to meet offtake specifications.

The reagent dosing strategy was revised to consider the nickel metal feed rate as opposed to feed grade and throughput independently. This permitted the integration of a system that automatically regulates depressant (sodium sulfite) and modifier (TETA) dosage rates.

Following the success of this project, similar strategies are being employed in other areas of the processing plant. This paper discusses the metallurgy of the circuit, the control philosophies employed in a key flotation train, the methodology used for reagent control and the theory behind the optimal dosing setpoints, as well as a comprehensive review of the results and benefits yielded as a result of the implemented changes.