Practical Mineral Resource reconciliation and risk modelling: a case study from Nova-Bollinger

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ABSTRACT

The Nova-Bollinger Deposit is hosted in the Albany Fraser Orogen, approximately 160km east-northeast of the town of Norseman in Western Australia. Since commencement of mining in 2015, the Nova Operation (Nova) has mined and processed 5.63Mt of ore grading 2.04% Ni, 0.86% Cu and 0.07% Co to 31 December 2020.

The 2020 update of Nova-Bollinger JORC Code Mineral Resource estimate (MRE) is classified as ~90% Measured with ~96% of the Ore Reserve estimated (ORE) classified as Proved. This high confidence in the majority of the MRE and ORE is due to the extensive underground diamond drill testing (~386km) of the deposit to a nominal 12.5 by 12.5m spacing, which was completed in 2019. The close spaced high-quality drilling and bulk mining method employed at Nova has effectively removed the need for separate grade control modelling outside of the MRE process. This has placed greater emphasis on global model reconciliation for Nova's Mine Geology department.

The reconciliation process used at Nova has evolved to enable the calculation of key reconciliation factors that measure the MRE and ORE performance to the Mill. This process has helped to identify key differences and inform several studies into the root cause for specific reconciliation results.

In 2020, a short period of sustained poor MRE/mill reconciliation led to the recognition that increasing the understanding of risk within the MRE and ORE should be investigated. To assist with modelling stope level risk within the mine plan and subsequent reconciliation, a formula was developed to quantify 'risk' within the MRE.

This paper details the process of MRE and ORE reconciliation at Nova and the subsequent studies the methods developed have helped to inform.