

Recent Improvements in Ore Sorting at the Renison Tin Concentrator – Target 1Mtpa

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ABSTRACT

Bluestone Mines Tasmania JV, Tasmania Tin Operations recognised value in Mining at or near to 1Mtpa. However, the Renison Tin concentrator is restricted at 750ktpa. The solution chosen was to upgrade the Ore through XRT Ore Sorting via the removal of waste material within the Crushing Circuit. In 2018 a three-stage crushing circuit coupled with two XRT ore sorters were installed. The ore sorting circuit contains a triple deck dry screen for initial classification, a wet screen for secondary classification and feed preparation, two XRT ore sorters targeting different size fractions, and an EM sorter to separate waste into Non-Acid Forming (NAF) and Potentially Acid Forming (PAF) waste. Challenges such as processing multiple ore sources and variable operating conditions require agile planning and clear operating strategies. Tools utilised to achieve this are; plant surveys including mass balances and process modelling, monitoring of particle size delivered to the ROM and fed to the crushing circuit, ROM pad management and blending based on grade, particle size distribution and amenability to XRT sorting. This paper will explore these tools in conjunction with good Mine to Mill and Geo-metallurgy practices in order to overcome challenging conditions and deliver value and process successfully at 1Mtpa rates.

Key words; Ore Sorting, Online Particle Measurement, XRT