

# Complex Orebodies Conference 2018

Paper Number: 6

## Applying Enhanced Grade Engineering to Complex Ore Bodies

*V. Jokovic<sup>1</sup>, P.J. Walters<sup>2</sup>, B.J. Adair<sup>3</sup>, R.D. Morrison<sup>4</sup>*

1. Senior Research Fellow, SMI-JKMRC, Brisbane QLD 4000.
2. Data Analytics Specialist, CRC ORE, Brisbane QLD 4000.
3. CEO and MD, CRC ORE, Brisbane QLD 4000.
4. Consultant to CRC ORE, Brisbane QLD 4000.

### ABSTRACT

The potential for taking advantage of “natural grade department” by size following blasting and crushing has been demonstrated for a range of ore types. Simple and low cost screening of fragmented rock can in some cases generate a fine product with improved grade to be directed to mill feed, and a lower grade oversize which can be directed to leach or to waste.

However, the ore texture (i.e. the arrangement of grains or veins within each rock) within an ore type often suggests that the use of well controlled rock breakage mechanisms might be able to enhance the recovery of valuable minerals to screen undersize and to further lower the grade of rejected oversize.

Where an ore body consists of many different ore types, the traditional approach of blending to metal grade will often add to complexity of treatment.

If Grade Engineering enhanced by selective rock breakage can be applied to each ore type to reject gangue as it is mined, processing a complex ore body may be simplified in at least some cases.

A major centre funded project is underway at the CRC ORE to assess the amenability of a range of ore types from operating mine sites to well controlled, selective breakage mechanisms, and incorporating this understanding into the design of comminution machines.

This paper reports on progress to date.