

Comparison of Predictive Models for Crushability Using Proxies

John Jackson^{1*} and Angus McFarlane²

¹JKTech Pty Ltd, 40 Isles Rd, Indooroopilly QLD 4068

²CSIRO, Mineral Resources Flagship, 26 Dick Perry Ave, Kensington, WA 6125

*E-mail, john.jackson@uq.edu.au

One of the approaches in geometallurgy is to develop predictive models of processing performance attributes within the block model using relatively inexpensive drill hole measurements often known as proxies. Early assessment of metallurgical performance has the advantage of identifying potential process and staging options and associated risks. Thus the selection of key proxies prior to any extensive drilling is required for the effective collection of data and optimal predictive modelling during the project development phases. Not only should proxies be relevant to likely processing routes, their sampling density will be influenced by the unit cost of each test and the underlying variability of the particular rock property concerned.

As part of the DETCRC research program, an extensive suite of proxies including geological observations, geochemistry, downhole geophysical logging and hyperspectral scanning were collected on a single test drill hole. In addition, for the main mineralized zone, hardness testing based on single particle breakage using the JKRBT machine as a proxy for crush response was undertaken at the same interval as the geochemistry. In this paper, the outcomes of predictive models using varying combinations of the proxy data are compared.