

Maximising the Value of Yandicoogina Orebody - Mine Geology Perspective

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ABSTRACT

The Yandicoogina Channel Iron Deposit (CID) is an accumulation of iron pisolites cemented by goethite-rich matrix. They are found in a paleochannel that meanders within a broad structural basin of the Yandicoogina Syncline in Pilbara region of Western Australia.

The deposit is presently mined by Rio Tinto and BHP, with the RTIO Yandi Mine Geology team contributing to a number of mining strategies to help maximise the resource. Two strategies are discussed: 1. replacement of batter-berm pit final walls by contour dozing, and 2. upgrading internal waste to ore.

1. Traditional Batter-Berm pit final wall configuration used to leave kilometer long wedges of ore sterilized around bench margins. New contour dozing configuration, based on dozing of ore down the ore-waste contact, as defined by Mine Geology, enabled recovery of additional ore.

2. Lower domains within the Yandicoogina ore body contain numerous clay pods. Contaminant alumina inherent within clay pods would occasionally place some of the material outside of crusher feed grade specifications, causing it to be perceived as 'internal waste' by mining models and permanently lost to waste dumps. In 2011, after multiple testing, Mine Geology demonstrated that this material could be upgraded to crusher feed via wet processing. With the support of the Rio Tinto Metallurgical Development team, Blending Aluminous ore product was defined and used to supplement higher grade ore to perfect tune product grades.

While increasing the mine's ore output, these ongoing value adding strategies promote more sustainable mining via better use of national, non-renewable iron ore commodity. They also extend mine life, reduce waste movement, improve strip ratio and increase productivity.