

Overcoming rougher residence time limitations in the rougher flotation bank at Red Chris Mine

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ABSTRACT

Red Chris Mine, operated by Newcrest Mining Ltd, is a copper-gold mine located in Northern British Columbia, Canada. The process plant produces an auriferous-copper concentrate for sale to smelters and generates two tailings stream, a non-acid generating (NAG) stream and a potentially acid generating (PAG) stream. The PAG stream is deposited sub-aqueously in the tailings impoundment area.

Rougher flotation performance was found to be poor in comparison to batch flotation tests conducted on ore samples during the feasibility study. Poor froth geometry in the rougher cells made it impossible to implement process control in the roughing circuit, and an inconsistent approach to operating these cells was identified as an opportunity for immediate improvement. Residence time limitations were found to be limiting rougher flotation performance.

This paper presents steps taken to optimise the existing rougher cells with the installation of concentric launders (donut launders) to reduce froth transportation distance followed by the implementation of a rougher flow controller to control the process and short interval control to align the focus and drive the operating philosophy towards improved recovery.

The paper also presents some brief results of a six-cell pilot campaign of the Eriez StackCell® technology planned to provide the next stage of rougher performance improvement.