

Improving stope extraction in the Hidden Secret ore body at Mt Charlotte gold mine

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ABSTRACT

The Hidden Secret ore body is located within the Mt Charlotte underground mining system in Kalgoorlie, Western Australia. Mineralisation of the Hidden Secret ore body is lode style and therefore differs from the typical economical mineralisation mined at Mt Charlotte and consequently demanded a novel approach to the mining methodology. The ore body is lens like in shape, extending 200m along strike, 210m vertically, and dipping at 55 degrees. The lode width varies from 1.5m at the extremities to over 22m in the central zone of the ore body. Average grade is 3.4 grams per tonne. The initial mining methodology was Modified Avoca utilising Longhole Open Stopping with pillars, in a bottom up stopping sequence. However, as Hidden Secret became better defined and wider than initially modelled, it was identified that a high portion of gold would remain in the pillars and other mining concerns emerged such as remote backfilling large open voids and potentially unsafe vertical standoff distances between levels and wide open stopes. A re-evaluation of this method was undertaken and a new approach adapting a variation of Avoca methodology was identified to remove the rib pillars and replace them with a sill pillar separating the 4 levels into 2 distinct blocks. This new approach provided an immediate advantage by removing the bogger backfilling activity from the same level of the active stope front, enabling stope drilling and prepping to occur during the backfilling cycle. Boggging productivity has also improved as the fired ore is funnelled to the draw point by the backfill rill, significantly reducing the requirement for remote bogging thus improving bogging productivity. This mining method is currently in progress in the first of the two mining blocks and is on track to realise the targeted recovery of 7,700 ounces from the rib pillars.