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The Evolution of Seismicity and Ground Control Measures at Ernest Henry Mine

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ABSTRACT

The Ernest Henry Mine (EHM) in Queensland, Australia is a Sub-level Caving operation that started production below the previously mined open pit at a depth of 535m. Production mining has progressed to a depth of 730m, with planned production mining to extend down to at least 1000m below surface. Increasing depth and knowledge about the rock mass and its behaviour, required on-going review and updating of the ground control and support systems used. The inclined nature and geometry of the orebody combined with geological structures provides for challenging mining conditions. Ernest Henry Mine has over the years introduced several measures to improve outcomes based on observations, monitoring and data analysis. As mining progresses deeper, there is a need to continue to proactively take steps to ensure future outcomes were anticipated and mining can continue safely and uninterrupted. The focus of this paper is on quantifying the changes experienced at EHM in seismic- and stress-driven behaviour of the rockmass, the ground control measures implemented, and the anticipated future conditions and controls required.