Ventilation planning considerations for the Carrapateena Sublevel Cave

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ABSTRACT

OZ Minerals is an Australian based modern mining company with a focus on copper. Their Carrapateena project, located in South Australia is one of Australia's largest undeveloped copper deposits. Construction of Carrapateena is underway and commissioning is scheduled for Q4 2019 after which the project will ramp up to steady state production.

The project will be a 4.25 Mtpa underground sub-level caving (SLC) operation, with an estimated mine life of 20 years. The planned ore handling comprises of ore-passes feeding underground crushers and loaded onto a conveyer belt that transports the ore up the decline to the surface.

The underground workings will extend to a depth of 1.4km with a steep VRT gradient and future mine cooling is also required. In addition, the orebody contains low levels of uranium grade, which requires suitable ventilation strategies to manage possible radon emanation. In keeping with the philosophy of designing a "mine-of-the-future", ventilation on demand (VoD) is a central part of the ventilation strategy.

This paper explores the feasibility and on-going operational ventilation planning for the Carrapateena Project. There are very few examples of SLC mines with radon challenges and therefore this paper provides a unique perspective on ventilation planning. The paper also presents the feasibility and subsequent implementation planning from an owners and consultants perspective.

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