

# Prominent Hill Wira Shaft Sink: A Modern Strip & Line

*D. Lagacé<sup>1</sup>, D. Kilkenny<sup>2</sup>, C. Hill<sup>3</sup>*

1. Package Manager – Shaft, BHP Prominent Hill, Adelaide SA 5095. Email: [daniel.lagace@bhp.com](mailto:daniel.lagace@bhp.com)
2. General Manager Raising Australia & Projects, Byrnecut Australia Pty Ltd, Perth WA 6150. [dave.kilkenny@raisingaustralia.com.au](mailto:dave.kilkenny@raisingaustralia.com.au)
3. Project Manager – Shafts, Byrnecut Australia Pty Ltd, Perth WA 6150. Email: [christopher.hill@byrnecut.com.au](mailto:christopher.hill@byrnecut.com.au)

Keywords: shafts, shaft sinking, strip & line

## ABSTRACT

BHP is undertaking a mine expansion project at Prominent Hill in South Australia. The project scope includes construction of an ore passes, gyratory crusher, loading station, hoisting shaft, overland conveyor system and ventilation upgrade. The use of hoisting shafts as materials handling infrastructure in Australia has been somewhat limited compared to other jurisdictions with well-developed underground hard rock mining industries. Shaft sinking projects have been undertaken sporadically over the recent decades with expertise drawn from other areas where shaft sinking is more common. Despite this, several large capacity hoisting shafts have been constructed and continue to operate successfully today. The use of mine shafts remains an effective means of materials handling in addition to being an important option for electrification.

This paper is a case study focusing on the application of the strip & line method in sinking a 7.5 metre diameter, 1,326 metre deep, concrete-lined hoisting shaft. This shaft, being constructed by Byrnecut Australia Pty Ltd, plays a central role in transforming the mine from a 4.0 Mtpa conventional sublevel open stope mining operation into a 6.5 Mtpa mining operation with extensive materials handling infrastructure. This project benefitted from previous shaft sinking experience to incorporate important improvements to the design of the sinking arrangement, the sinking stage, and in-shaft mining practices. Several of these improvements resulted in enhancements to safety and productivity and have proven to be a viable path forward for other projects.

The paper covers the design, planning, and execution of the main shaft sink while outlining improvements to existing practices, the use of an innovative stage design, and challenges faced during the project.