

Raisebore Drill String Recovery - Case Study

M Andrew, M Adams, D McTiffen

1. M Andrew, Senior Mine Project Engineer, Fosterville Gold Mine, Fosterville Victoria 3557. mandrew@klgold.com.au
2. M Adams, Operations Manager, Adams Drillers, Wangaratta Victoria 3677. marcadams@adamsdrilling.com.au
3. D McTiffen, Managing Partner, Clear Cut Interventions, Perth Western Australia 6000. dmctiffen@clearcutinterventions.com

ABSTRACT

A Major Ventilation Upgrade project commenced at the Fosterville Gold Mine (FGM) in 2017. This project consists of three large diameter shafts and new surface Primary Fans to upgrade the ventilation system. The success of the Ventilation Upgrade Project is key to the ongoing success at FGM and mining of the high-grade gold deposits at Fosterville.

Whilst pilot drilling the H4760 Return Air Rise, the Raisebore drill string became stuck in the pilot hole at approximately 300m down hole, presenting a significant technical problem and delay to the project.

The value of the in-hole equipment and investment in the raise up to that point was motivation to recover the drill string and retaining the raise location. More importantly, in considering the options was the long lead-time required should a new shaft location be the final solution, and the delay this would cause to the delivery of the ventilation required underground. Recovery of the drill string was not possible using the ability of the Contractor's Raisebore Drill. An alternative method for freeing the drill string was required.

FGM engaged Adams Drillers and Clear Cut Interventions who provided a turnkey solution for these recovery services. With Adams Drillers ability to provide the necessary drilling equipment and experience, and Clear Cut Interventions expertise in oil and gas recovery equipment, they proposed a method to recover the Raisebore drill string and raise location. The proposed recovery methodology had not been undertaken before in the recovery of Raisebore Drilling equipment.

The recovery process undertaken included:

- Internal severance of Raisebore Drill String through mechanical and explosive severance techniques
- Hole cleaning and stabilisation of formation
- Wash over of remaining Raisebore Bottom Hole Assembly (BHA) including removal of stabiliser fins
- Internal engagement of remaining BHA
- Downhole hydraulic jarring on the BHA to overcome stuck force and recover the BHA to surface

This paper outlines the key undertakings and learnings from the mine operator and recovery drilling team's perspective throughout the successful recovery of the stuck Raisebore Drill string and provides lessons learned and recommendations for future occurrences.