

AMC BOS™ recovers abandoned hole and boosts productivity

Objectives

Recovering ongoing financial losses, addressing ongoing drilling issues using conventional grouting methods

Challenges

The drilling contractor and crew were unable to advance for two weeks on a drill hole with traditional grouting methods due to sloughing and caving around the drilled casing.

Resolution Copper had battled these issues over a 10-year period. The lack of adequate cement seal around the casing was causing ongoing ground control issues as they tried advancing directly from a cut-out of the window wedge down at 2,732 ft.

The hole was also facing formation pressure due to fluids on the outside of the drill casing annular space, further complicated with only 50% fluid returns, and 50% leaking off behind the casing.

As a result of the poor conditions and outcomes of the previous fluid program, the crew had decided to abandon the borehole.

Project Details

Location: Arizona, USA

Project: Resolution Copper's Superior Mine

Resource: Cu

Application: Borehole recovery

IMDEX Solution

IMDEX Borehole Optimisation System™ (BOS)

Following a recent successful two-week trial at the site, the Drill Supervisor at Resolution Copper contacted IMDEX about the possibility of using AMC BOS on the troublesome hole to provide a preventative solution to the lost circulation being experienced on-site.

AMC BOS is a proactive solution combating fluid losses and borehole instability, by delivering a measured amount of AMC BOS FIX™ at regular intervals to the bottom of the drill string and up the annulus.

The fluid reacts instantly with borehole fluids, permeating and sealing fractures, providing a thin but robust lubricic membrane to the borehole wall.

Strategy & Solution

- The rapid descent, dual-action, in-hole casing unit delivered a measured amount of AMC BOS FIX™ at regular intervals down the borehole. The AMC BOS UNIT™ deploys AMC BOS FIX at precise locations from the bottom of the drill string into the strata and migrates into the annulus to develop a plasticising membrane on the borehole wall.
- AMC injected the hole using the AMC BOS UNIT and conditioned the borehole for 15 minutes before the unit was pulled and the crew started drilling. An initial 1.5' of cave material was recovered, held together by AMC BOS FIX. The biggest challenge facing the drill crew was the low 50% fluid returns, with 50% leaking off behind the casing. Following a second injection, fluid leakage around the casing slowed, and the hole continued to advance an additional 20 ft through the caving and sloughing zones.
- AMC BOS was able to stabilise the caving and broken ground, allowing the drill crews to advance the hole a further 93 ft in one shift.



Before: Formation before deploying AMC BOS



After: Using AMC BOS stabilised the formation

The solution offered a **viable and rapid alternative** to the conventional method that wasn't producing results

Results

The AMC BOS was fast and convenient with only 2 injections used for the borehole to get real results



Produced considerable financial returns by recovering and completing a borehole that was to be abandoned



Saved time, being faster, easier and more efficient compared to traditional grouting



Effectively sealed casing, reducing fluid leakage



Improved hole stability by consolidating the formation



Significantly reduced torque and rod trips



Improved overall productivity and site safety



Improved bit life