AMC BOS™ recovers an abandoned hole and boosts productivity in Arizona, USA

CASE STUDY

AMC's Borehole Optimisation Solution™ (AMC BOS™) secured casing, improved fluid returns and advanced an abandoned borehole in Arizona, USA. The solution provided significant financial benefit, addressing issues which the drilling contractor had been facing for over 10 years with conventional grouting methods.

At Resolution Copper's Superior Mine in Arizona, the drilling contractor had spent two weeks trying to advance a drill hole with traditional grouting methods but due to sloughing and caving around the drilled casing the crew were unable to advance. The team at Resolution Copper had battled these issues throughout a 10 year period at the site.

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 the fluids on the outside of the drill casing annular space along with only 50% fluid returns, with 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.

Solution

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

Results

- Produced considerable financial returns by recovering and completing a borehole that a mining company had decided to abandon
- Effectively sealed casing, reducing fluid leakage
- Significantly reduced torque
- Saved time, was faster, easier and more efficient compared to traditional grouting
- Reduced rod trips
- Improved bit life
- Improved hole stability by consolidating the formation
- Improved overall productivity and site safety.

AMC BOS™ CASE STUDY

Recovers an abandoned hole and boosts productivity in Arizona, USA

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 the AMC BOS FIX™.

The biggest challenge facing the drill crew was that there was only 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.

Before

Formation before deploying the AMC BOS™.

After

Using the AMC BOS™ consolidated the formation.

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. The results were visible in the core samples pictured.

"In all my time drilling at this site, I have never witnessed a product do what the AMC BOS™ had done to improve drilling and loss circulation conditions."
Eric Castleberry, Drill Supervisor at Resolution Copper

Project Outcome

AMC BOS™ was a success at the Resolution Mine, saving a borehole that had been abandoned, reducing the costs and improving the productivity of the hole while providing the following operational efficiencies;

- Achieved financial returns on a borehole facing sloughing and caving zones the mining company had abandoned
- Saved significant time compared to the traditional grout due to the fast setting and inexpensive AMC BOS FIX™
- The solution offered a viable and rapid alternative to the conventional method that wasn't producing results
- The AMC BOS™ was fast and convenient with only 2 injections used for the borehole to get real results
- Provided significant torque reduction, reduced rod trips and improved the bit life
- Improved hole stability by consolidating the loose formation
- Reduced fluid leakage behind the casing
- Improved overall productivity and site safety.

The drilling contractor was very pleased with the outstanding results from the AMC BOS™, which offered a result unseen in 10 years at the site.

Further Information

For more information about this case study, please contact amc@imdexlimited.com or your local AMC representative.

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