PROJECT DETAILS

Customer:
Yancoal, Moolarben

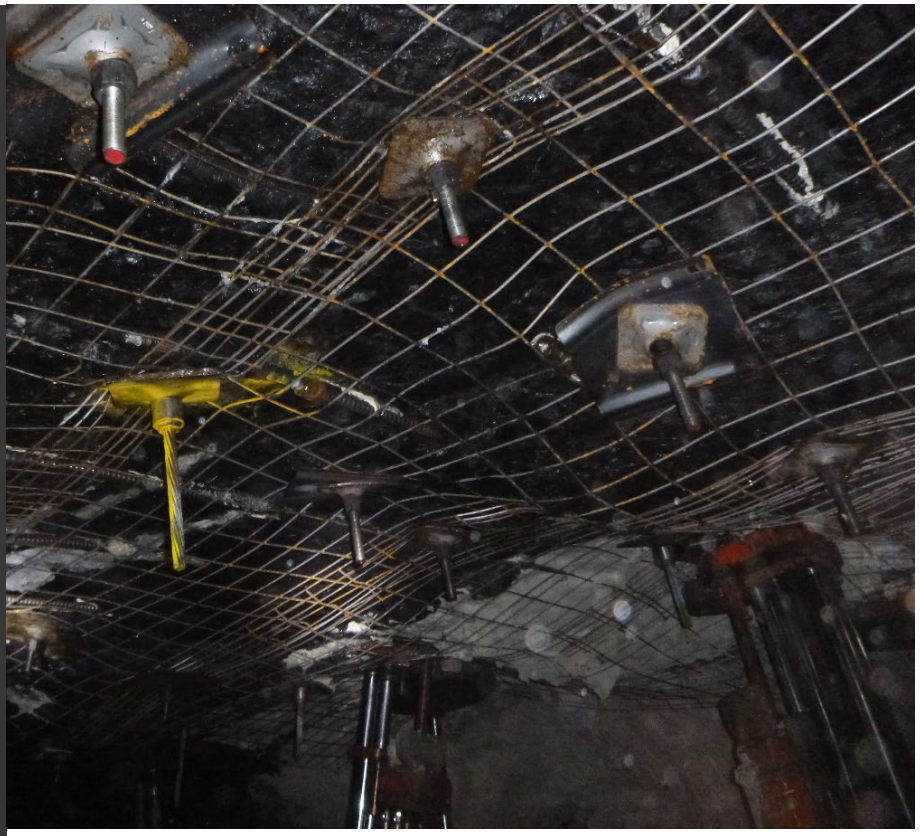
Location:
Ulan, New South Wales

Project Duration:
July 2019 – September 2019

Products Offered:
- Geoflex®
- Carbofill®
- Self Drilling Anchor
- Rappass

Industry Sector:
Mining – Soft Rock

Applications:
Ground control
Services



SPILING THROUGH A DYKE MOOLARBEN COAL.

Moolarben Coal is located approximately 40 km North of Mudgee in the Western Coalfields of NSW. Access to Underground 1 is from Open Cut 1 highwall. The mine uses longwall mining methods to extract coal from the Ulan Seam, targeting the low ash D working Section ply to provide thermal coal to its long-standing customers. The longwall panels are approximately 300 m wide.

The mine design for the underground operations requires the development of mains headings consisting of five roadways from Underground 1 to access the new Underground 4 area. Exploration of the area identified a dyke of between two to six metres in width which intersects all five development headings.

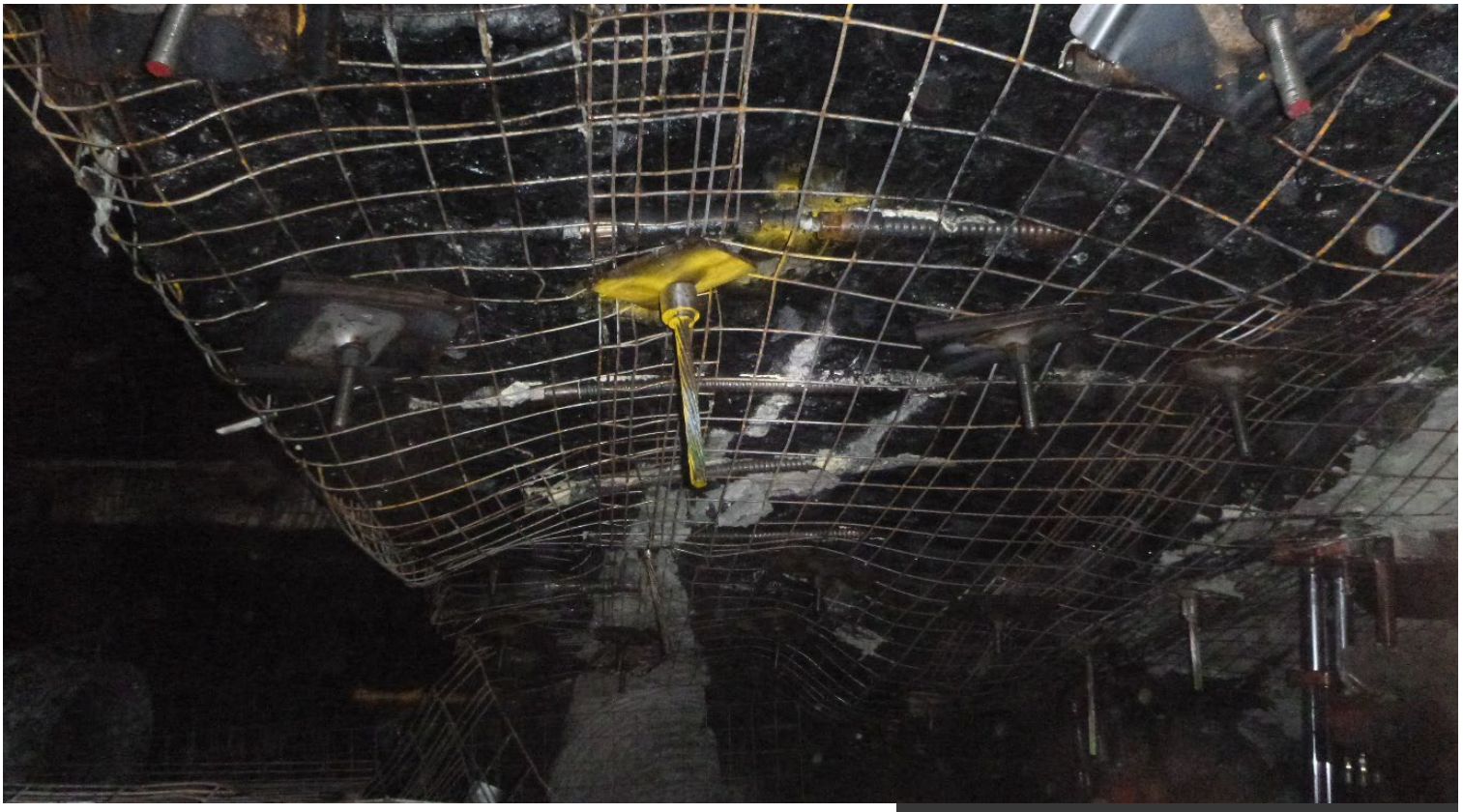
CHALLENGE

Moolarben has had previous experience in Underground 1 with difficult mining through the soft and altered dykes, particularly when in the presence of groundwater. Moolarben engaged with Minova to develop a method of maintaining roof horizon as the Continuous Miners developed through these life of mine roadways.

Minova attended several meetings and a risk assessment with the mine sites Technical and Operational teams to develop a support system and mining sequence. The mining system required development to mine to just short of the dyke and set up the roadway for Self Drilling Anchors (SDAs or spiles) to be installed across the roadway roof line through the dyke. This process required excavation above the normal roof line by approximately one metre to allow the SDA's to be installed as close as possible to horizontal.

The return roadway was the first roadway to be set up for spiling as this would allow the crews to learn from both the installation and mining process in a non-critical roadway first. The belt and travel roadway were planned as the last roadways to be developed.

MINOVA



SOLUTION

The spiling design required the installation of two rows of R32 SDAs which were installed at close spacing of approximately 300 mm centres. A total of 21 SDA's were installed across each heading. Once installed, the SDAs were injected with Geoflex®, a silicate injection resin, to bond the strata to form a stable roof horizon. Approximately 1,000 litres of Geoflex® was injected in each heading or approximately 48 litres injected through each SDA into the strata.

Contingency planning for mining through the dyke included the ability to apply Carbofil®, a two-part phenolic foam resin for filling cavities should they occur. Mining recommenced using the SDAs and Geoflex® to form the immediate roof horizon which assisted with the installation of primary roof support including tendons.

RESULT

Each roadway was successfully developed through the dyke whilst maintaining a level roof horizon with no requirement for the use of Carbofill®.

After mining through the dykes was completed the roof and ribs were sprayed with Rappass, a specialty shotcrete, to ensure the long term stability of the roadway.

Moolarben Coal were pleased with the outcome which maintained stability of the roadway through the dyke and met the scheduling requirement to develop access to Underground 4.

ACHIEVEMENTS

- Dyke safely mined through with a level roof horizon maintained
- 1,000 litres of Geoflex® used for spiling in each heading
- Long term stability of the roadways ensured
- Scheduling requirements were met

SECURING PERFORMANCE TOGETHER.