PROJECT PROFILE
S16U002

Terefil® Used to Abandon Pipeline at Iron Mine

mainmark

INDUSTRY
Mining

STRUCTURE
Tailing Dam Drain Pipes

PROBLEM
Pipe Decommissioning

LOCATION
Australia

DURATION / YEAR
3 days / August 2016

TECHNOLOGY
Terefil®

BUSINESS UNIT
Mainmark Australia

Pictured: 1. Mainmark pump zone of operations. **2.** Single access point to pipe for abandonment.

Summary

The mine is a division of a top-tier company in Australia, which mines iron ore used as an ingredient in producing premium-quality, low-impurity steel.

Drain pipes from the tailing dam at the mine were malfunctioning because the decant riser pipes had been blocked by the iron ore residues. Left untreated, the blockages may have worsened, putting the pipes at risk of collapsing, compromising safety and productivity on site.

As there was no access to the decant risers to allow them to be remediated, the northern and southern pipes needed to be safely and permanently abandoned. The high-density polyethylene (HDPE) pipes measured 200mm in diameter. One was 230m long and the other 241m long.

Mainmark decommissioned by pipes by filling them with 15m^3 of Terefil® 5000, its proprietary lightweight, flowable cementitious grout. The solution reached a compressive strength of 5MPa at 28 days to help mitigate risk of collapse. The work was completed in just three days.

Objectives

Mainmark was required to fill the pipes without exceeding 300kPa pressure on the pipes during a 12-hour continuous placement, and then cap the pipes on completion.

As the pipes could only be accessed through a single point, the project required a highly flowable fill material that would travel the length of the pipes to fill them completely.

Work was required to be completed in a tight project timeframe of three days, with minimal disruption to mine site operations.

Solution

Mainmark specified Terefil® for the project because it can be easily pumped across long distances. This flowability was crucial to the project's success, given there was only access at one end of the pipes.

To fill the pipes, Mainmark placed 25mm breather pipes along the full length of the damaged decant riser pipes. These breather pipes exited the HDPE pipes through an adaptor that fixed to the pipe end for placing the grout.

Terefil® was the ideal material for this project due, in part, to its extremely low shrinkage rate and the lack of bleed water during curing time. A high shrinkage rate and too much bleed water can lead to an inaccurate fill with gaps between the pipe and the fill material. Terefil® overcomes this challenge and delivers a strong, reliable and environmentally-inert pipe abandonment solution.

The tailing dam drain pipes are now safely decommissioned, removing the risk from the site.