



wassara

**STRAIGHT
FORWARD
DRILLING**



WASSARA IS DRILLING FASTER, SAFER AND MORE ACCURATE IN LUBAMBE COPPER MINE

Lubambe Copper Mine is an underground mining operation situated in the Zambian copper belt. The mine started production in 2012 and to reach deeper levels, there was a great need to extend the infrastructure. Wassara's water-powered drilling was chosen for many reasons.

Reason 1 - the program 'Because we care'

Background

Lubambe initiated programs to entrench safety and environmental responsibility. They called the program "Target Zero" or "Pantu Tulasakamana" which is a Bemba phrase meaning "Because we care". The program includes monitoring of dust, noise and energy consumption.

Outcome

Thanks to the combination of the water-powered Wassara hammer and the water-powered drill rig, provided by the contractor HPE, optimal conditions were achieved. The water suppresses and eliminates the dust and the noise level is dampened by the water in the hole. The Wassara hammer is also 4-5 times more energy efficient than traditional air powered DTH hammers.



The pumps at the drill site

Reason 2 – the need for long and flat holes

Background

Holes were needed for both power-cables and drainage of water. The designed drill holes were up to 88 meters long and as flat as 15 degrees. Rotary non-percussive drilling seemed to be the only feasible method to deliver such demanding holes. However, the mine was seeking for a drilling method that could be just as productive as traditional percussive drilling methods.

Outcome

When introduced to Wassara, they immediately identified Wassara as the solution to drilling such demanding holes in terms of straightness and yet achieving a high productivity.

Reason 3 – very soft formations

Background

Since the formation was soft there was a severe risk that large holes would collapse when drilling.

Outcome

Wassara is the only DTH-hammer technology that doesn't pressurize the formations since water is used to power the hammer instead of compressed air. The holes were drilled with the Wassara W150 hammer with a 165 mm drill bit. Some of the holes were reamed to 250 mm and 350 mm. In order to

guarantee as straight holes as possible, several guide-tubes were used behind the hammer. Once the holes had been drilled, casings were installed in order to prevent the holes from collapsing due to the soft formation.

Result

The combination of the water-powered Wassara hammer and the water-powered drill rig from HPE was a true success for the mine. Not only had the drill holes been completed within the time schedule and deviation requirements of roughly 1 % but new standards for the work environment had been set as well.



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Equipment used	
Hammer	Wassara W150
Pump	HPE High pressure pump
Drilling fluid	Clean water from mine
Rig	HPE Long hole drilling rig
Drill bit	165 mm, 250 mm & 350mm reamer bit
Drill rods	114mm API
Bore hole length	Average 60 m
Formation	Soft formation
Project year	2016