



Diamond core drilling in the wettest underground mines in the world.

PROJECT PROFILE DRILLING

CLIENT
KONNOCO

DIAMOND CORE DRILLING

Konkola, Zambia

SITUATION:

The area that the client (Konnooco, part of Vale) wants to explore and mine, is approximately 5 km from an active mine. This mine is reputed to be one of the wettest underground mines in the world. To operate, they must pump vast amounts of water from the mine, therefore de-watering the surrounding areas. This de-watering causes a major problem for Layne when drilling. The ore-body is very deep and most holes are drilled to more than 1200 m. Because the ground is de-watered to depths past 800 m, the ground above is extremely unstable and unsupported, making the drilling a specialized, difficult exercise. Given the deep ore bodies, the holes must be planned and executed extremely carefully to get the desired results.

SOLUTION:

To control the de-watered areas for the deep hole drilling program, Layne has developed its own efficient mud mixing tank. This tank makes the required muds easy and fast to mix. We have worked with our mud supplier to provide us with a 'one bag' solution. These pre-mixed bags ensure consistency and reduce packaging for environmental reasons. Layne uses local drill crews that are trained exclusively for this project. We have assigned some drillers to drill just the top depths, some more experienced crews drill the middle depths and the most experienced and senior drillers drill the final and vital bottom depths.

Layne works very closely with the client on a daily basis to ensure that any issues are resolved immediately. We worked with a specialized supplier to develop an efficient wedge that is simple in design but requires skill to execute. This wedge aids in solving down hole problems such as stuck drill rods, ground cave in, and changes in hole direction. In many cases, the ground needs to be cemented and re-drilled, while some areas need to be cased off at different depths.

Layne's crews have been tested by multiple challenges presented by constant mud use, de-watering, and the ground filling up with cuttings and water and the hole suddenly 'dumping' (a problem unique to this area). However, Layne's experienced team has overcome these challenges, which is something previous contractors could not accomplish.

Layne provides the following services and solutions for the client:

- + Efficient mud and hole stabilizers
- + Solutions in overcoming down hole problems using wedges
- + Qualified crew with skills utilizing various levels of experience
- + Efficient fleet of rigs capable of deep hole drilling
- + On-site support from Ndola workshop and office
- + Constant communication between site, office and client
- + Large supply of new rods and gear

SERVICES EMPLOYED:

- + Diamond Core Drilling
- + Wireline Coring

