NOV's VectorZIEL™ 800 Successful in a Non-conventional Drilling Application

Technology

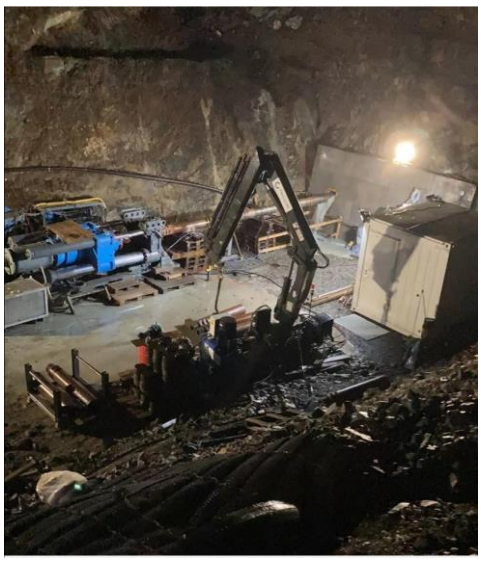
NOV's VectorZIEL™ 800 rotary steerable system features industry-leading accuracy and is especially suited for wells with tight target tolerances. The autonomous, closed-loop steering system can be used to hold target inclination and azimuth using high-accuracy directional sensors located only 1.5m from the bit.

Challenge

A city in Norway needed to install utility piping through an environmentally sensitive mountainous area. To minimize environmental impact and reduce infrastructure cost in comparison to laying the piping over the mountain, it was decided to drill two parallel horizontal 12.25in holes through the mountain and use a raise-bore rig to ream the hole to a 1.42m diameter. Azimuthal accuracy was critical to ensure that the two holes did not intersect, and it was also essential that the holes were drilled with a small constant decline to ensure that the water would flow naturally.

Results

The VectorZIEL 800 was chosen to drill two 200m holes placed only 7.2 meters apart. The holes were drilled successfully to final plan with less than 14cm vertical deviation. An NOV field trainer was deployed to set up the surface system for the first time and initialize the tool. The built-in telemetry system sent directional surveys and tool status updates continuously, enabling the drill crew to monitor progress independently without dedicated personnel continuously on site. The turbine-powered capability VectorZIEL tool enabled both holes to be drilled in single runs despite the tool being downhole for more than 35 days at a time.



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