

The Challenge

The value of using a wired drill pipe service to improve drilling efficiencies and well placement has been proven by operators in several markets globally, including Norway. As the industry looks towards further efficiencies and reduced environmental emissions through use of automation, digital twins and remote operations, there is a growing demand to connect downhole to the internet with the visibility offered by higher telemetry rates.

Reelwell recognised that the key to increasing market adoption of wired drillpipe was to develop a service that not only offered higher speed telemetry rates, but also the ability to power downhole tools from surface, reliably, and with a lower overall cost of service delivery.



The Solution

Designed for full and easy integration into a rig, the DualLink network has been built with redundancy at its core and the total cost of ownership in mind. While current wired pipe solutions will often use a cable connected at either end of the drillpipe, DualLink provides a braided conductor combined with an insulating material. This bonds to the inside diameter of each pipe, helping to reduce the potential for failure. The connectors at the ends of each pipe joint are robust, self-cleaning and field replaceable.

Having spent several years in development, qualification and field testing with partners, the Reelwell team concluded the joint industry project by undertaking a full-scale demonstration of DualLink to prove its capability and reliability.

This demonstration took place at the NORCE Ullrigg rig in Stavanger Norway in September 2020. A DualLink drillstring, consisting of 96 joints / 3058ft of DualLink pipe was run continuously for 80 hours to assess the service performance. Factors being demonstrated included:

- bi-directional telemetry
- power transmission
- system uptime
- pipe handling & racking
- tripping in/out of hole
- real-time transmission of high-speed drilling mechanics, surveying and logging data via DualLink during drilling and tripping

The Result

Throughout the demonstration DualLink performed without failure for over 80 hours operating with in hole, drilling granite down to 4213ft. DualLink demonstrated its compatibility to power and communicate with the BHA tools of a major service company in addition to Reelwell's along string measurements.

Results included:

- **high speed bi-directional telemetry at >61,000 bps**
- **power transmission of up to 500 W from surface to the battery-less BHA downhole**
- **100 per cent uptime reliability of telemetry and power transmission**

The successful full-scale demonstration of DualLink powered and wired drillpipe showed its potential to enable a transformation in digital drilling technologies. It marks the beginning of the end for the 40 year old legacy MWD mud-pulse technology currently in use and opens the door to enhanced drilling automation driven by continuous high speed downhole measurements powered from surface.

Customer & Partner Quotes:

"Equinor congratulates Reelwell with a successful drilling demo on Ullrigg."



"Nabors is excited with this milestone by Reelwell and are proud to have played an important role in the development of this innovative technology. We believe DualLink will become an important element in the evolution of integrated drilling solutions. It will reduce overall well-construction costs and will provide enhancements to our automated drilling apps to create smoother and more accurate wellbore trajectories ultimately leading to increased production for our customers."



"DNO congratulates Reelwell with a successful drilling demo and test of DualLink at Ullrigg."



"Aker BP congratulates Reelwell and our development project partners Equinor, DNO, DP-Master, Nabors, Edge Energy and the Research Council of Norway on a successful completed drilling test of the DualLink powered pipe system at the Ullrigg test site. We look forward to participate in bringing this revolutionizing drilling system to market. We believe that high quality and affordable powered drill string services will transform the drilling industry imposing much needed innovation to downhole tools and electronics, increasing capabilities and efficiencies in the years to come."



"DP-Master congratulates Reelwell on the successful completion of the test well using DualLink powered drill pipe with real time high speed data. DP-Master Engineering and Manufacturing teams are proud to have been involved in this project. DualLink will be a gamechanger as far as automation of the drilling process and bring much needed efficiencies."

