



WHEN PREPARING TO DRILL A COMPLEX WELL USING MPD (MANAGED PRESSURE DRILLING), THE CLIENT TURNED TO ABERDEEN DRILLING SCHOOL TO DEVELOP A DIGITAL TWIN OF THEIR RIG AND MPD-WELL FOR A DRILL THE WELL ON SIMULATOR (DWOS) TRAINING SOLUTION.

## Case Study

**Client:** Leading Norwegian Oil Company

**Location:** Stavanger, Norway

**Challenge:** Client needed to train the drilling crews and MPD engineers in their offshore well operational procedures to ensure they were prepared for any challenges that may occur while drilling this complex well.

**Solution:** We developed a comprehensive DWOS training programme for all members of the rig-team built around a fully integrated digital twin of the rig and MPD system to provide a highly realistic training environment in which to optimise the client's operational training.

"Our practical and highly experienced instructors were able to encourage participants to work effectively as a team by providing them with a safe but realistic environment in which they could trial scenarios, address problem solving and develop group decision making processes." **Tom Bremer**, Director at Aberdeen Drilling International (Norway)

## Background

Aberdeen Drilling School has full-size drilling simulators installed at our RelyOn Nutec Training Centre in Stavanger, Norway. These simulators have been used to train personnel from most of the leading oil companies operating on the Norwegian Continental Shelf. To date, we have delivered Drill the Well on the Simulator (DWOS) sessions with well-specific simulator scenarios for more than 6000 drilling personnel. In this latest project, the client's drill crew and MPD personnel needed to prepare for the safe and efficient operation of the MPD system on a complex well.

## Solution

For this DWOS project, our client wanted to verify procedures, pre-test MPD system procedures, verify the rig's Piping and Instrumentation Diagrams (P&IDs) and prepare for complex offshore drilling operations.

By utilizing our full-size drilling simulator, we were able to immerse the client's rig teams into the digital twin of the offshore drilling conditions that they would experience during well operations. Our highly experienced facilitators created a digital twin of the well and rig, to enable the client to pre-test and, where necessary, modify the procedures developed for the drilling programme.

Following initial classroom-based refresher training, the drilling teams spent several days immersed in intensive, interactive simulation training exercises. The DWOS training included real-time challenges and incident scenarios including sudden changes in MPD pressures and fluctuating cuttings levels. These different scenarios, allowed the drill crew to practice their "first action responses" and taking the mitigating actions necessary to maintain safe MPD operation on the well under these circumstances.

## Outcome

The participants were engaged in bespoke classroom and simulator-based training designed to address the challenges that could potentially occur while drilling this complex well. This realistic experience not only helped the rig teams to recognise the parameter trends in the well, it also made them more aware of the potential challenges ahead of the event. In turn this helped to increase confidence, ensure that issues could be mitigated in advance, and minimise potential downtime during actual MPD well operations.

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