

Case study: North Sea

E-line deployed solution mechanically cuts 5.5 in. heavy-weight drill-pipe in stuck BHA

A major operator in the North Sea was struggling to retrieve a drilling BHA (bottom hole assembly) out of the well having made several unsuccessful attempts.

After assessment of all available options between Baker Hughes and the customer, it was decided to perform a precise mechanical cut of the 5.5 in. OD heavy weight drill pipe (3.25 in. ID / 1.125 in. wall thickness) in the middle of the joint.

A successful cut would enable the rig to pull the drill pipe free and run in hole with a conventional fishing assembly to retrieve the rest of BHA.

When reaching out to find a provider, the customer understood the 3.25 in. restriction and 1.125 in. wall thickness would be the main challenge for many traditional cutting options on the market. However, the **Downhole Electric Cutting Tool (DECT)** from Baker Hughes with 2.75 in. OD **Extreme Head** installed is capable of cutting up to ~1.1 in. thick drill pipe wall.

Solution

After a review of the job parameters with the SME (Subject Matter Expert) for this service, the DECT solution was proposed to the client whilst acknowledging that this was potentially at the limit of tool specification. A hazard analysis was carried out and risk mitigations implemented prior to cutting equipment being mobilized.

In parallel, the wireline team quickly mobilized a full wireline unit and crew to the rig. The 2.75 in. DECT Extreme

cutting heads were installed on the DECT001 tool at the wellsite by the field crew, followed immediately by rig-up of the tool string. The remote support system allowed the SME team in the UK to monitor the job progress in real-time.

Results

Once the tool was on depth and the pipe confirmed to be in tension, the cut was completed in only 7 minutes.

The cut was confirmed successful and the DECT tool string was POOH. The rig was able to pull the top part of the drill pipe out of hole without issue or overpull. Baker Hughes fishing team then proceeded in retrieving the remaining items downhole.



Images of the retrieved 5.5 in. heavy weight drill pipe with 1.125 in. wall thickness at surface following successful cut

Challenges

- Cut 5.5 in. OD heavy weight drill pipe with 1.125 in. wall thickness
- Thickest wall to be mechanically cut by DECT
- Urgent mobilization required

Results

- Equipment mobilized from the UK arriving on the rig within 72 hrs
- With drill-pipe in tension, the cut was started and pipe parted in only 7 minutes
- Full remote support from Baker Hughes Subject Matter Expert in UK during the operation
- Integrated operation, involving drilling, fishing and wireline departments to deliver and perform a flawless operation
- Improved operational efficiency due to speed and quality of cut