Sondex™
a Baker Hughes business

Case study: North Sea

DECT218 creates electro-mechanical slots and successfully makes full compressional pipe cut in single run

As part of a campaign to temporarily plug and abandon two wells in the Danish sector of the North Sea, an operator needed to create a series of holes in the tubing string for circulation, followed by a full pipe cut enabling efficient retrieval to surface.

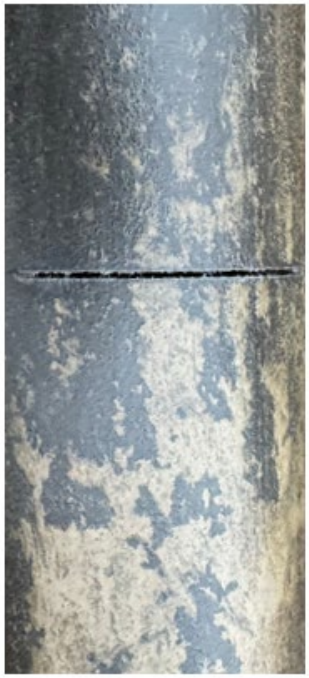
The operator required a non-explosive solution that also delivered efficiency in line with their offshore operations. Additionally, the technology needed to be able to pass through the 2.3 in. ID of the hold-open sleeve while still functioning effectively in the N80 3.5 in. tubing string.

The Downhole Electric Cutting Tool (DECT218) from Baker Hughes was proposed as the solution. The technology can create high precision electro-mechanical incisions (slots) as well as make full pipe cuts in a single run (single-run, multi-function) without the need to pull out of the well and reconfigure.

As part of the detailed job planning, three electro-mechanical slots were required to create the desired flow area across the incisions for circulation. By design, the DECT218 is able to create custom slot lengths, for this operation each slot length was 2.7 in.

The DECT218 completed each slot, from anchoring and de-anchoring, in approximately five minutes with progress monitored in real-time via software confirming each success instantly.

With the DECT218 remaining in hole, fluid circulated through the slots prior to the DECT218 switching to “cut mode” and successfully making a full pipe cut in the 3.5 in. tubing in approximately 20 minutes. The downhole functional change from slot cutting to pipe cut saved a rig down/rig up event (HSE) as well as ~10 hours of rig time.



3.5 in. pipe retrieved to surface with 2.7 in. slot created.

Clean electro-mechanical cut finish when pipe retrieved to surface.

Challenges

- Technology required to fit through 2.3 in. minimum well restriction
- No damage to outer casing string from the slot cutting operation
- Tension not applied to pipe during cutting

Results

- Created three electro-mechanical slots meeting the operators desired flow rate before successfully completed a full pipe cut
- Eliminated the requirement to pull out of the well to reconfigure the string by switching from slot cut to pipe cut mode downhole
- Saved ~10 hours rig time with our ‘Single-run, multi-function’ technology