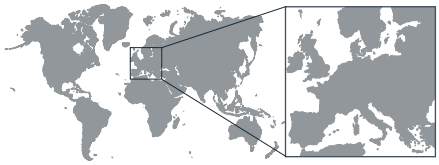
Tubing stump evaluation

Measurement to optimise fishing

Case study: **SPACE® Focus**

SPACE® Focus provides accurate measurements and 3D imaging in less than 6 hours, enabling retrieval of a problem fish.



Region: Europe
Well Type: Producer

Case Benefits
- Detailed images obtained despite non-optically clear fluid in the well
- Unexpected damage identified and evaluated
- Precise measurement of the top of the fish and exact orientation information allowed fishing to be completed in a single run
- Less than 6 hours of operational time

Key Capabilities
- Real-time information from e-line conveyed services
- Full 360° circumferential coverage
- Scanning ahead of the tool allows obstructions to be fully evaluated
- Accurate measurements of critical dimensions in real-time
- 3D rendering to aid understanding available immediately on wellsite

Typical Applications
- Inspection of obstructing fish
- Parted tubing
- Collapsed tubing/casing

Challenge

Following a successful cutting operation on a tubing string, an overshot was run to engage the stump. Despite multiple attempts with different sizes of gauge, it proved impossible for a drift run to pass into the stump.

A lead impression block was run, which showed a clear indentation on one side of the block near the edge, suggesting the top of the stump was not circular. The retrieved side of the cut was clean, suggesting that damage had occurred subsequent to the cut being made.

Precise dimensional information was needed to plan a retrieval operation.

Solution

The unique ability of the **SPACE® Focus** to both look ahead as it approaches a fish and take precise measurements in non optically clear fluid made it an obvious choice for this time-critical intervention.

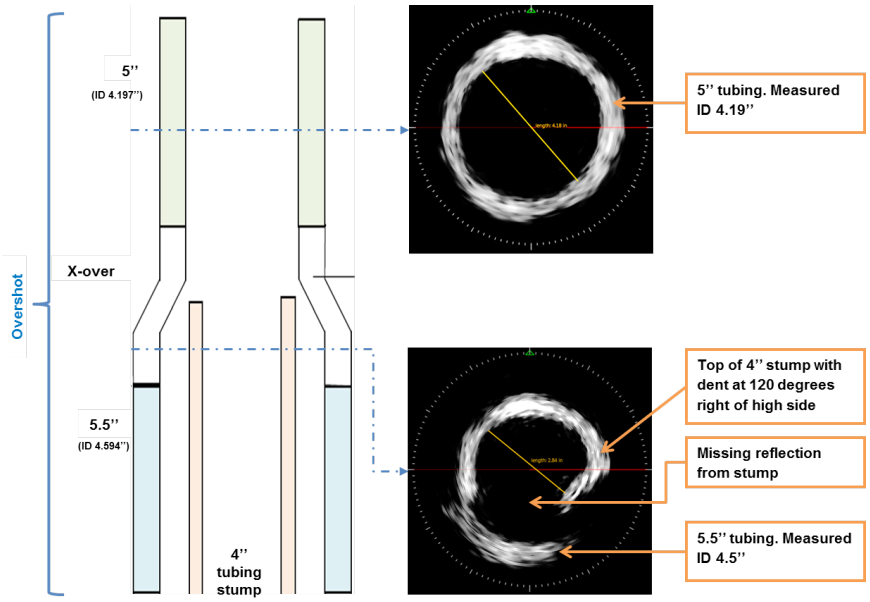
Real-time images and measurement of critical dimensions while downhole allow confident appraisal of the target fish while minimising valuable rig time.

Archer

Result

Several passes were made, both up and down, and the stump was tagged to confirm depth. It was immediately apparent that there was deformation of the top of the stump, with a significant dent oriented at around 120° to the high side of the hole.

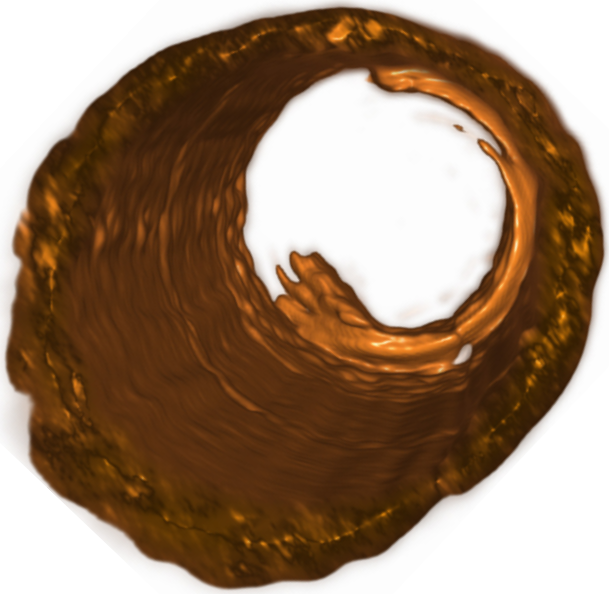
There was no reflection from the next 100° arc of tubing, indicating a total absence of metal. The interior surface of the 5-1/2" tubing of the overshot was clearly seen instead, and measurements confirmed its ID, unequivocally establishing that a large section of the tubing stump was missing.

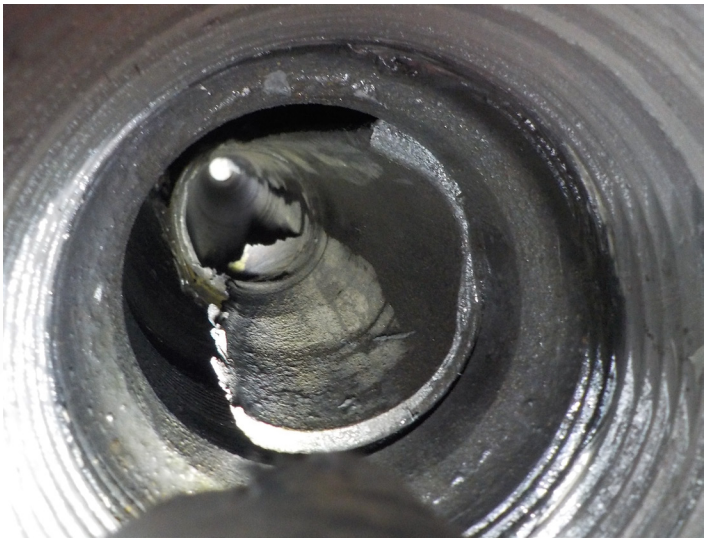


Overshot assembly and stump cross-sectional scans

Rendering the data in 3D is a powerful tool to aid understanding of the physical situation downhole. Archer's software allows even complex environments to be visualised immediately after making a logging pass while on location. The **SPACE® Focus** 3D rendering of the tubing stump when seen from above enabled the operator to understand exactly the size and orientation of the fish, optimise the fishing operations and retrieve the tubing stump at the next attempt.

3D view, looking down on the tubing stump





Retrieved stump in the overshot assembly

Captured by SPACE®

Visualise your well in 3 dimensions

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Archer