



Customer Success Story

AN EXAMPLE OF HOW GE HELPS CUSTOMERS IN THE OIL & GAS INDUSTRY

GE's DECT cuts badly damaged tubing, in high-compression, in less than two minutes.

Background

During a well suspension, our customer needed to remove highly eroded tubing. Because the tubing was weakened, it could not be removed in a single piece.

A cut was required in the 7-inch tubing to allow the upper section to be safely removed from the well. Further complicating matters, the tubing was calculated to be under a compressional load of 50,000 pounds at the cut point, and a 4-inch restriction prevented the use of traditional cutting technologies.

Solution

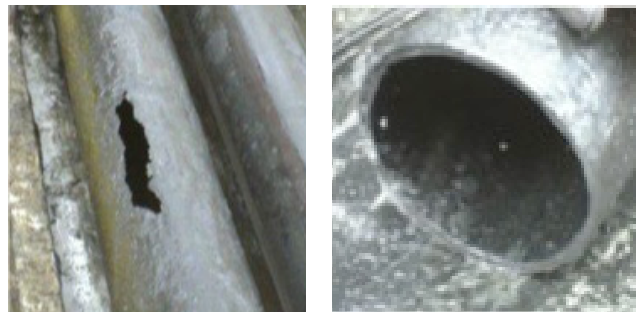
GE's DECT was selected for this operation due to its:

- Fast cutting speed (less than two minutes), which significantly reduces rig time
- Versatility to cut pipe quickly in both tension and compression stress states (10 percent of all DECT cuts have been in compression – with 100 percent success)
- Proficiency at cutting high alloy steels, including 718 Inconel and 25Cr stainless steel
- Real time data reporting ability confirming cut success (cutter position, downhole microphone response, and motor load)
- Extreme range; 3.625-inch tool outer diameter (OD) can cut out to 7.0 inches
- Flexibility to cut in a variety of well deviations and fluids (gas, drilling mud, and brine)
- Ability to be deployed on mono/multi-conductor cables, all standard tractor platforms, and coiled tubing
- Low power requirements (110/240V AC), which reduce the risk of cable/surface equipment related failures

Result

The 7-inch OD, highly damaged tubing was successfully cut in high-compression in less than two minutes, allowing the tubing to be pulled from the well without issue.

The DECT's ability to cut pipe successfully under a high-compression load helped to reduce the rig time significantly by eliminating the need for additional operational steps. By cutting much faster than competing technologies, the DECT saved our customer several additional hours of rig time, while the tool's real-time feedback helped prevent damage to the external casing.



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Job Details

Cutting tool used: GE DECT002, OD: 3.625"

Operational Details			
Material:	L80	Tubing State:	Compression (50,000 lbs)
Pipe OD:	7.00"		
Pipe ID:	6.184"	Minimum Restriction Above the Cut Point:	4.00"
Well Fluid:	Brine (1.25 SG)		
BHT:	35°C	Dev:	37°
BHP:	1200 psi	Cutting Depth:	1500 m

Cutting in Compression

GE's DECT has a proven track record of successfully cutting an extreme range of tubulars (OD from 3.5 to 7 inches) in a compression stress state.

Process Overview

During the initial stages of a cut, a section of tubing in compression behaves the same way as one in tension. As the operation progresses, the DECT's cutting action reduces the tubing wall thickness, resulting in a smaller cross sectional area of the tubing at the cut point and a progressively thinner section of pipe supporting the compressional load.

At a certain point, the compressional load distributed over the reduced area will exceed the yield point of the metal, causing the remaining material to fail through plastic deformation.

NOTE: In this operation, this occurred when only 0.03-inches of wall thickness remained; it would occur at this point with any mechanical cutting technology.

Next, the DECT engineer retracts the blade, or if it has become pinched by the tubing, the blade can be snapped off using its specially designed weak-point. The tool is then returned to surface, and the pipe is recovered.

The DECT's real-time surface feedback confirms the exact moment when tubing failure occurs, removing the need to spend additional hours on the cutting operation.

Since 2009, GE's DECT systems have completed 24 cutting operations on tubing/packer mandrels in compression, with a 100 percent success rate.

For more information email:
mechanical.interventions@ge.com

GE Oil & Gas
Building X107
Range Road
Cody Technology Park
Farnborough
GU14 0FG

Visit us online at:
www.geoilandgas.com/wireline