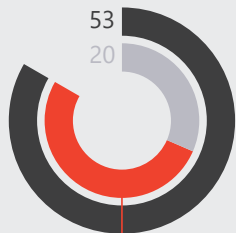
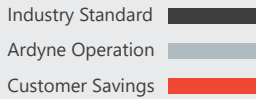


DOWN HOLE POWER TOOL - Superior pulling capacity

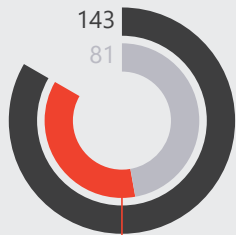
Making Slot Recovery/Re-Entry, Workover and P&A faster, simpler and better



CASE STUDY – 2016UK010



33
HOURS SAVED



62
CONNECTIONS AVOIDED



740,000
LBS OF ADDITIONAL FORCE

INDUSTRY CHALLENGE

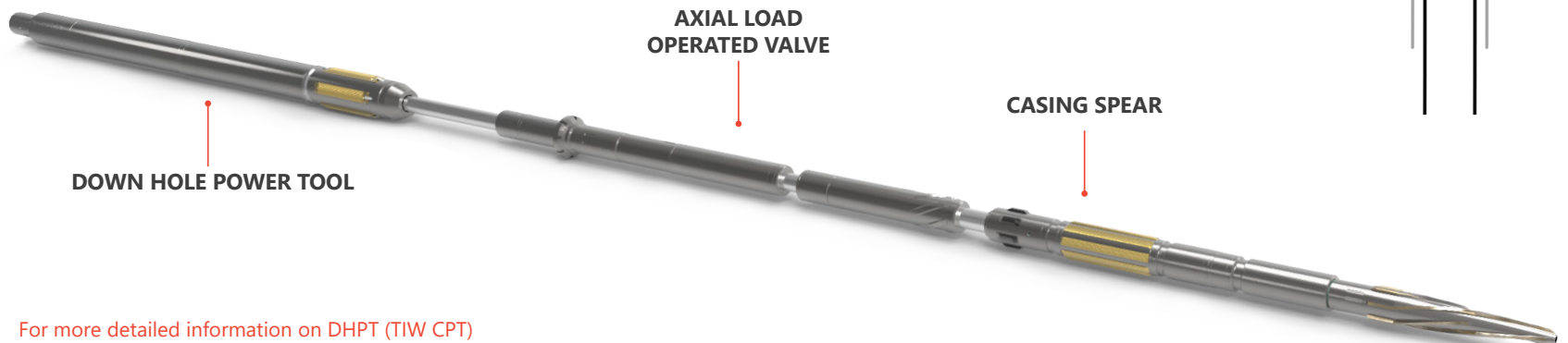
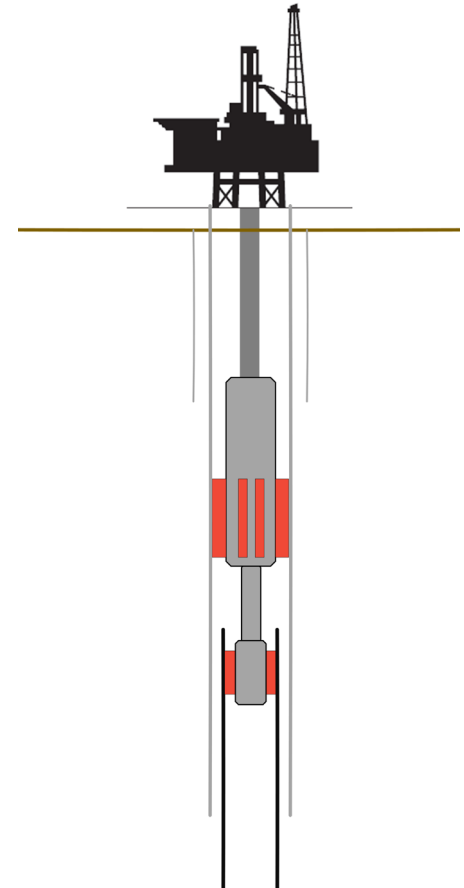
Settled solids, cement residue or shifting formation has shown that casing can be challenging to retrieve. To recover casing, operators spend valuable time planning multiple cuts and retrieval operations. Some drilling rigs have limited pulling capacity and a substantial amount of that pulling force is lost due to friction in the drill string, between the top drive and the casing spear, leaving limited power at retrieval depth.

ARDYNE SOLUTION

The Down Hole Power Tool (DHPT), with its superior pulling capacity, increase the ability to recover more casing per operation compared to conventional pulling with the rig.

New alternatives for slot recovery operations, for instance through the use of rigs with limited pulling capacity are enabled with the features of the DHPT.

The DHPT's pulling forces are applied locally in the well and there is no loss in the pulling force due to drill string friction, thus maximizing the ability of pulling stuck or packed off casing.



For more detailed information on DHPT (TIW CPT) visit www.ardyne.co/DHPT

Superior rig force, Locally delivered

Deploying the DHPT close to the stuck point and the extreme power generated, greatly increase the ability to recover stuck casing.

FEATURES AND BENEFITS

- All pulling forces are generated locally downhole.
- Pulling forces applied directly to stuck casing.
- Maximising the length of casing recovered to surface.
- Reduces rig time spent on maintenance and safety checks.

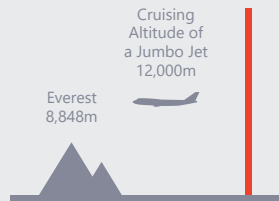
SAFETY AND EFFICIENCY CONSIDERATIONS

- Eliminates the need for jarring.
- Reduces strain on surface equipment.
- Dropped objects risk reduced.
- Could eliminated casing milling and HSE risk associated with handling swarf.

DHPT TRACK RECORD



554
RUNS OF DHPT



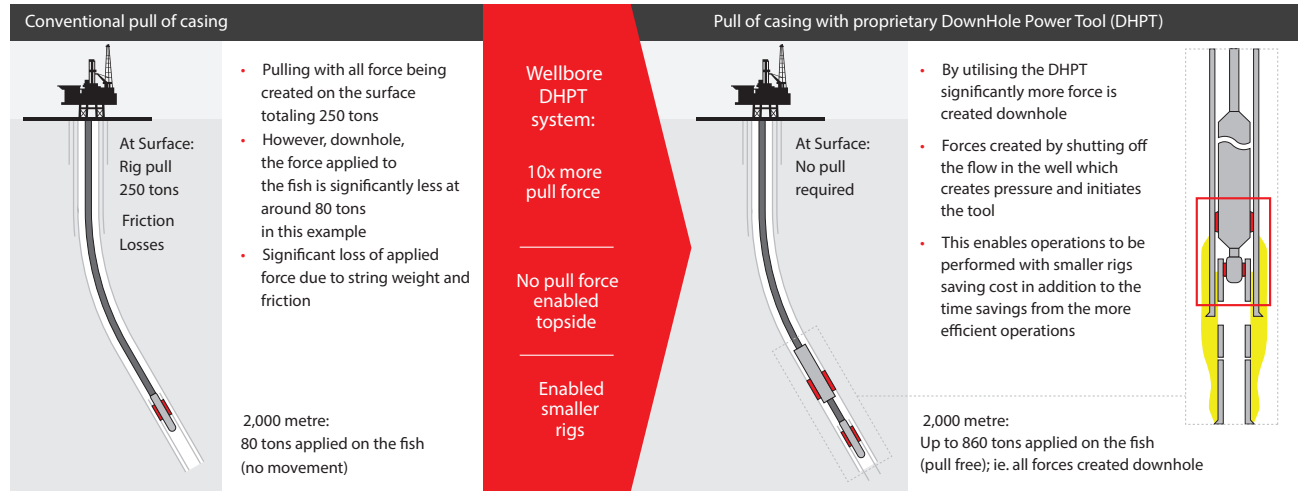
27,664m
PULLED WITH DHPT

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TOOL OPERATION



FLEXIBLE CONFIGURATION



| DHPT | 8 1/8" | 11 1/4" |
|-----------------------|-------------------------|---------------------|
| Casing size recovered | 5 1/2" - 7 5/8" | 7 5/8" - 17" |
| Tool length | 11,9m | 13,2m |
| Pulling capacity | 1 200 000 lbs (80%) | 1 900 000 lbs (80%) |
| Top connection | 6 5/8 API Full Hole Box | XT 57 Box |
| Bottom connection | NC50 Pin | 6 5/8 Reg Pin |

ABOUT ARDYNE

Ardyne develops and supplies specialised technology and services to the global energy industry, focusing on reducing rig time spent on downhole casing removal in Slot Recovery/Re-Entry and Plug & Abandonment operations. Technology advancement lies at the core of Ardyne, combined with decades of operational experience and responsive, client-focused delivery.