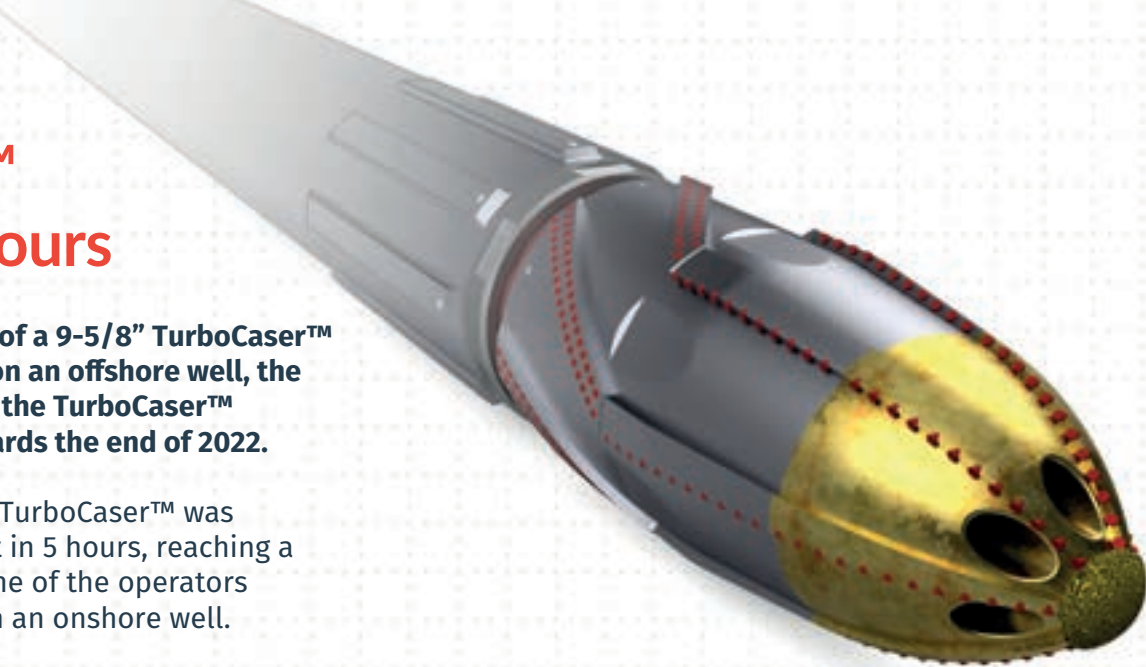


9-5/8" TurboCaser™ Reams 833 ft in 5 Hours

As a follow up to the successful running of a 9-5/8" TurboCaser™ turbine powered drillable reamer shoe on an offshore well, the oil company based in Abu Dhabi utilised the TurboCaser™ technology on an ERD onshore well towards the end of 2022.

As part of an ongoing project the 9-5/8" TurboCaser™ was deployed and successfully reamed 833 ft in 5 hours, reaching a final planned target depth of 16,473 ft, one of the operators longest achieved target depth to date on an onshore well.



THE CHALLENGE

The national oil company required the field operators to run 9-5/8" production casing from surface to 16,473 ft within one of the longest onshore 12-1/4" hole section. Getting the 9-5/8" casing to planned target depth was critical in supporting the well objective of achieving a final well target depth of 40,000 ft. This required the casing to be successfully run from the 13-3/8" shoe to target formation for setting the 9-5/8" casing. Casing running challenges such as reaming through unstable shales and past ledges were to be expected.

THE SOLUTION

Hydraulic modelling provided by Deep Casing Tools verified that effective flow rates could be pumped through a 9-5/8" TurboCaser™ and remain within the specified ECD limits of the open formations and expected surface pressures.

The Deep Casing Tools 9-5/8" TurboCaser™ turbine powered reamer shoe was selected to ream through cutting beds, ledges, or any tight sections of hole to ensure the 9-5/8" casing was run to critical target depth for this ERD well.

THE RESULT

The TurboCaser™ was tested successfully on surface and at the 13-3/8" casing shoe with the SPP matching the hydraulic simulations. It reamed through 6 tight zones.

Below is the summary of the reaming required to land the casing at planned depth:

- At 13,426 ft, reamed down 20 ft. with 6 bpm, 750 psi.
- At 13,740 ft, reamed down 10 ft. With 6 bpm, 750 psi.
- At 13,951 ft, reamed down 10 ft. With 10 bpm, 1,100 psi.
- At 14,300 ft, reamed down 30 ft. With 10 bpm, 1,600 psi.
- At 14,950 ft, reamed down 20 ft. With 12 bpm, 1,900 psi.
- From 15,730 ft the tool was reamed hard for last 743 ft to final depth of 16,473 ft with 12 bpm, 2000 psi.

Total depth reamed by the TurboCaser™ was 833 ft, achieved in 5 hours.

Following the landing of casing at target depth it was cemented as per the program, the plug bumped, and the casing successfully tested.

The 9-5/8" TurboCaser™ was drilled out in 35 minutes using a 8-1/2" PDC bit. Use of the tool prevented the need for pulling casing and performing a clean out trip saving the operator 7 days rig time.

IN NUMBERS

- Conventional Technology
- TurboCaser™



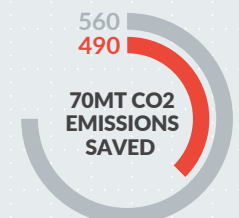
168HRS RIG TIME SAVED

Use of the TurboCaser™ saved a minimum of 7 days rig time and \$500K USD rig spend.



\$500K SAVED

The TurboCaser™ reamed through cutting beds, ledges and any tight sections of hole to ensure casing was run to critical target depth.



12% REDUCTION

The TurboCaser™ reduced 70MT of CO2 emissions, helping operator towards reaching net zero targets.

