

## Offshore, Horizontal Producer Well, New Zealand

As part of an Extended Oil Recovery (EOR) programme, an International Operating Company (IOC) required to workover an existing extended reach horizontal sand face completion (1,751m of 90° inclination production hole section) to resolve a sand ingress concern which was choking production.

### THE CHALLENGE

The IOC required to deploy a remedial 3-1/2" Standalone Screen (SAS) lower completion with swell packers within the existing original 5-1/2" SAS lower completion to isolate the sections of suspected washed-out screens.

Torque and drag modelling provided by Deep Casing Tools (DCT), and verified with client, indicated the risk of sticking and helical buckling. Due to the tight clearance of running the remedial screens inside existing screens with a high number of zonal isolation swell packers, there was limited to no capability to rotate at the deployment depth and deviation.

### THE SOLUTION

DCT's MechLOCK™ Drill Pipe Swivel was selected to allow for independent swivelling of the conveyance drill pipe from surface to above the liner top.

MechLOCK™ aided in re-distributing friction, allowing additional weight to push the screens to target depth (4,548m MD) and reducing stick and slip to protect the sensitive screens and swell packers from damage while running in hole.

### THE RESULT

The MechLOCK™ Drill Pipe Swivel was successfully run by the IOC's wellsite team with remote support from DCT on both the dummy completion run and the actual completion run, with Friction Factors (FF) observed accurately matching pre-job torque and drag modelling.

On the two runs, the tool was activated in swivelling mode in compression, then picked up into tension and permanently locked with 25 right hand turns, demonstrating the ability to lock in the event that rotation would be required below the MechLOCK™ for secondary mechanical release of the packer running tool, or to rotate the entire liner.

A clear indication of locking was observed with a controlled torque increase at surface. Upon laying down at surface, each tool was observed to be in the stroked closed (locked) position.

Within a matter of minutes from deciding to lock on each run, the tool was permanently locked. There was no requirement for dropping a dart, no pumping, no pipe opening at surface, no waiting, and no hydraulic compatibility concerns with the lower completion packer, owing to the MechLOCK™'s 100% mechanical functionality.

**“** We are proud to have supported the world's first and second deployment of the MechLOCK™ Drill Pipe Swivel. The tool functioned as designed and its simplicity and ease of use with remote support was of significant value in contributing to the success of our workover campaign. This innovative tool ensured target depth was reached, with minimal stress to our screens and swell packers, allowing them to be placed at the correct target depth for optimised production and ROI.”

Senior Well Engineer, IOC, New Zealand

