

Seamless Collaboration Improves Production by More Than 1,000 bbl/d in Aging North Sea Field

Successful restoration and uplift project used agile intervention technologies deployed on wireline

A joint effort revived oil production across three target wells, successfully uplifting two wells and restoring access to a third, with more than 1,000 bbl/d of oil added and 15,000 bbl/d of water eliminated.

An ambitious project to increase production in a mature oil field

The operator of a mature North Sea oil field selected a cluster of three candidate wells for surveillance and intervention to secure oil barrel uplift in late 2020. The new campaign was designed to accurately diagnose underperforming intervals, detect and isolate swept intervals and reservoirs producing excess water, create a robust remediation system for increasing production across intervals with remaining potential, and find potential bypassed pay zones.

A novel approach using agile intervention technologies

To ensure use of best practices and industry-leading technology, the operator shared its plans and data with Schlumberger's domain experts and commercial team. Upon reviewing the data, Schlumberger suggested a novel approach that included agile dynamic intervention technologies to cover all contingencies and scenarios required to achieve campaign goals. Over the course of the project, experts from Schlumberger worked directly with the customer's subsurface and operations team, producing a full technical and commercial alignment that helped ensure the project's success.

No shortage of remediation options

The agile approach proved instrumental to the campaign, enabling the intervention team to capture real-time opportunities for field uplift. For surveillance, Schlumberger applied unique technologies such as its Pulsar* multifunction spectroscopy service and Flow Scanner* horizontal and deviated well production logging system deployed on tractors.

The breadth of technology that Schlumberger supplied meant that there was no shortage of remediation options to seamlessly adapt the intervention based on the data acquired and further assessments by the intervention team. Options such as sand cleanout, debris removal, water shutoff, perforations, and perforation cleanout were always available to apply as required based on challenges that arose as the program progressed.

Intervention succeeds on multiple fronts

As a result of the joint collaboration between the customer and Schlumberger, the project achieved its overall goals with more than 1,000 bbl/d of oil added and 15,000 bbl/d of water removed from production. Through the cased borehole, the joint team accurately measured multiple reservoir parameters including current saturation, which was used as input to refine the petrophysical model. More than 1,100 ft of access was regained using the ReSOLVE* instrumented wireline intervention service's active debris removal tool, with more than 400 L of debris recovered, providing critical information for future workover opportunities.



Perforation cleanout chamber returned to the surface following a P3 postperforating treatment run.*