

D-Set Setting Tool and DSL Digital Slickline Cable Set Large-Bore Gauge Hanger in Monobore Well

Nonexplosive setting enables medium-term pressure and temperature monitoring service for further development of reservoir characterization and management

Mechanical intervention technologies by Schlumberger and Peak Well Systems avoid cost of pulling first slickline unit for 22 days of measurements.

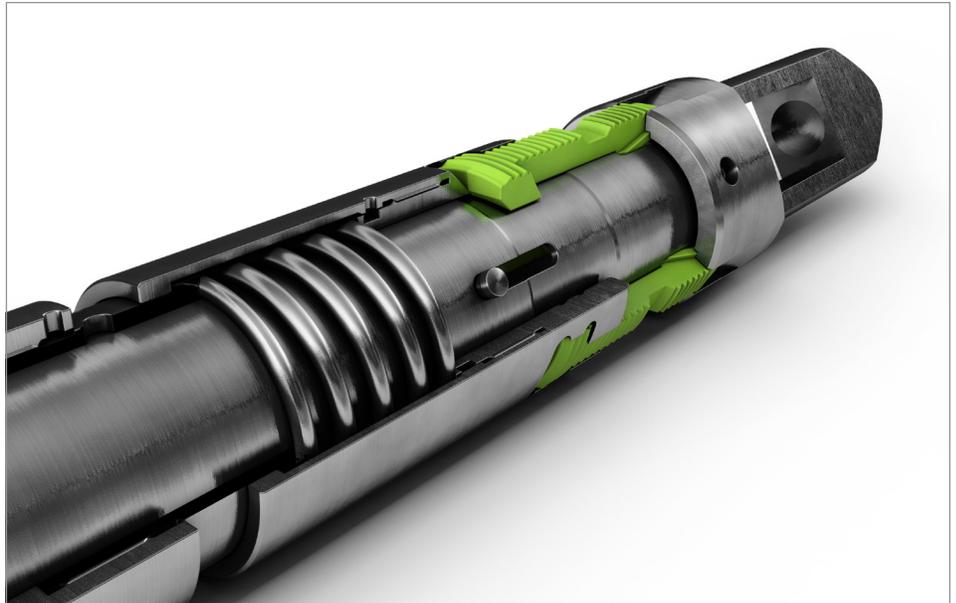
Zhaikmunai LLP's concerns

Zhaikmunai LLP, subsidiary of Nostrum Oil & Gas PLC, was engaged in exploration, development, and production of oil and gas from the Chinarevskoye Field in northwestern Kazakhstan. Pressure buildup and temperature had to be recorded in a well for 22 days to further develop skin parameters for reservoir characterization and management. To convey and set a medium-term pressure and temperature monitoring service, Zhaikmunai required a nonexplosive solution.

What Zhaikmunai tried first

Zhaikmunai first considered a traditional nipple solution, but the well had a monobore completion, and there were no nipples for setting the pressure and temperature gauges.

A second traditional solution was to hang gauges on slickline. But this required diverting a second slickline unit and 24-h crew, costing about USD 80,000 for the 22-day operation. Time would also be lost on the rig while waiting for a second unit to be dispatched, and the 24-h crew would need to be staffed. Zhaikmunai needed a low-cost well intervention alternative.



Large-bore gauge hanger by Peak Well Systems.

What was recommended

Schlumberger recommended using a large-bore gauge hanger (LBGH) by Peak Well Systems with pressure and temperature gauges for pinpoint real-time and memory data acquisition. These would be deployed with D-Set* digital electrohydraulic setting tool and DSL* digital slickline cable by Schlumberger for setting the LBGH 100% mechanically at the required depth with accurate depth control anywhere in the tubing.

What was achieved

After technical and commercial discussions and agreement about the mechanical intervention, the LBGH was mobilized to Kazakhstan. The Peak LBGH was set as an anchor at the correct depth without explosive setting devices, providing a platform for pressure and temperature instruments requiring suspension in the wellbore. It was conveyed by DSL digital slickline conducted by two Schlumberger specialists from Kazakhstan who prepared, mobilized, and deployed the service. The team was trained and supported by personnel from Peak Well Systems. The 22-day mechanical intervention took 5 h of personnel involvement: 2 h to rig up, 1 h to run in hole, 1 h combined to set and pull out of hole, and 1 h to rig down.