

# Single-Trip Downhole Reservoir Test Saves Rig Time in Ultradeepwater Presalt Environment

Quartet system increases test flexibility, reduces string length, and simplifies operations offshore South America

## CHALLENGE

Minimize rig time and associated costs during an ultradeepwater presalt reservoir test and perforating job offshore South America while ensuring service quality is uncompromised and all test objectives are met.

## SOLUTION

Run the Quartet\* high-performance downhole reservoir testing system to decrease rig-up and rig-down time compared with conventional downhole test string designs.

## RESULTS

Achieved all test objectives while saving rig time worth an estimated USD 156,000.

**“The packer setting operation was spectacular. I hope that Schlumberger maintains the same level of dedication for future operations with this new technology.”**

Operator representative  
Ultradeepwater test operation



## Reliably test challenging ultradeepwater reservoir

An operator was performing a reservoir test in an ultradeepwater presalt field located offshore South America. Challenging well test conditions included water depth of almost 7,000 ft [2,134 m], while a planned acid operation that would pump 40 bbl of 28% HCl added to the operation's complexity. To minimize rig time, associated costs, and risk, the operator sought a solution that could efficiently achieve its test objectives while ensuring the highest level of service quality.

## Perform comprehensive test with simplified string design

After consulting with Schlumberger, the operator chose to perform a downhole reservoir test using the Quartet system. The Quartet system combines four leading downhole testing technologies into one string design that allows zonal isolation, valve operation and control, pressure measurement, and reservoir sampling in one downhole trip.

The IRDV\* intelligent remote dual valve, which features nitrogen-free, hydrostatically powered testing and circulating valves in one tool, gave greater flexibility to the test. CQG\* crystal quartz gauges obtained high-resolution downhole pressure measurements, and SCAR\* inline independent reservoir fluid sampling delivered contaminant-free fluid samples directly from the flow stream.

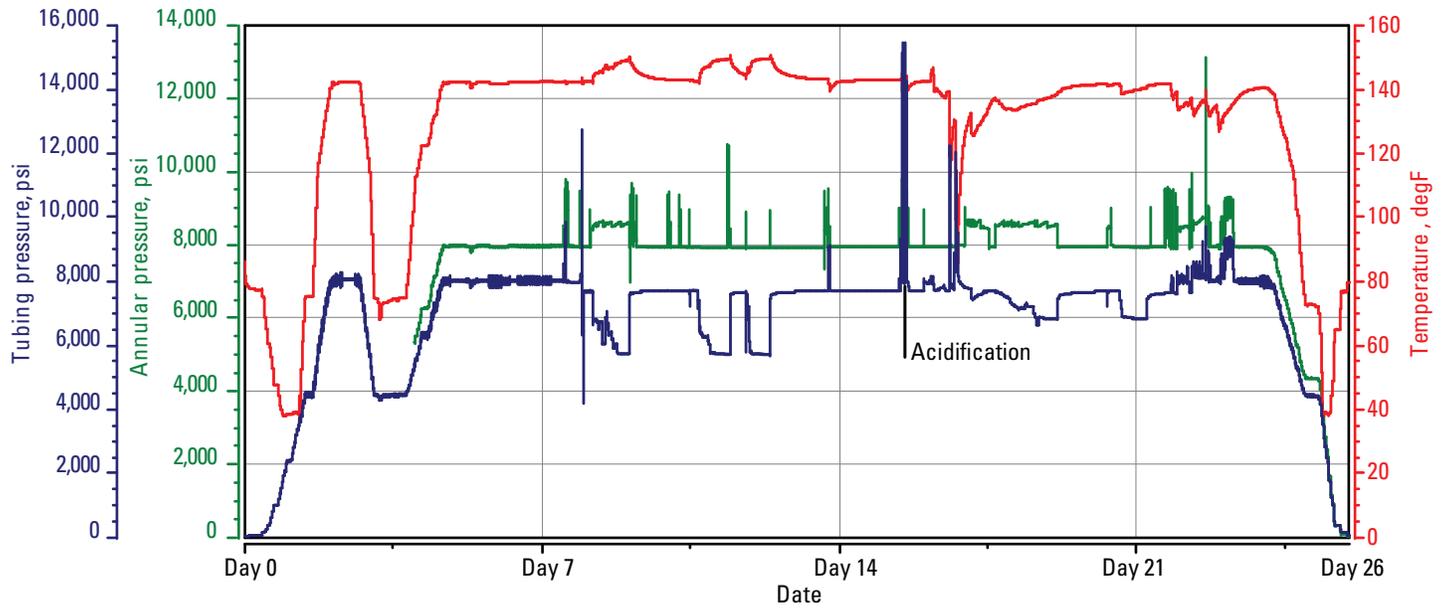
The rigorous and flexible CERTIS\* high-integrity reservoir test isolation system, a part of the Quartet system, was especially critical to this job. The CERTIS system combines many features of a conventional retrievable packer with those of a permanent production packer, including a built-in floating seal assembly that eliminates the use of a mechanical packer, mechanical hold-down, safety-release joint, hydraulic jar, and drill collars, further simplifying operations.

The CERTIS system was assembled and prespaced for maximal and minimal string-movement compensation to accommodate the operation, allowing flexibility for acid operations, well control, and multiple flows and buildups. Optimally sized tubing-conveyed perforating guns were loaded with PowerJet Omega\* deep-penetrating perforating shaped charges, which were selected to achieve a better connection to the reservoir. An acid job was performed that used 40 bbl of 28% HCl acid for stimulation.

## Save rig time, reduce costs, and mitigate risk with advanced configuration

The robust Quartet system reliably performed throughout the entire test operation, which included 487 hours downhole. Packer unset operations were easily conducted, presenting a clear indication of release-mechanism actuation, enabling the packer to move down for fluid-loss-control operations. The simplified operations mitigated the high risks of the ultradeepwater operation and saved rig time as well as an estimated USD 156,000 in associated costs. Further, the operator achieved all of its test objectives with the single-trip downhole reservoir testing system.

## CASE STUDY: Single-trip downhole reservoir test saves rig time, offshore South America



Pressure and temperature measurements obtained by CQG gauges at sensor depth 16,000 ft [4,877 m]. The Quartet system performed robustly during the pressure peak during acidification as well as throughout its 487 hours downhole.

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