

Case study: Brazil

# Stratos hydraulic isolation valve's reliable remote opening avoided \$4.5 million in operational disruption costs

An operator was completing an ultra-deepwater, multi-field campaign offshore Brazil. They required a solution that would allow isolation of the lower zone in subsea, multi-zone wells, targeting pre-salt carbonate reservoirs. The complex completion design required a downhole barrier that could be remotely opened once the upper completion and subsea infrastructure were in place. This was a very critical component of the operation, as the campaign was on an aggressive completion schedule, and would be very costly to intervene if the valve failed to open.

The operator chose to use the new **Stratos™ hydraulic isolation valve** from Baker Hughes for the 25-well campaign. The Stratos valve offers a resettable remote-opening function, removing the need for an additional trip to open the valve. This increases operational efficiency, allowing faster well commissioning and faster workover and re-commissioning throughout the life of the well. The valve is VI qualified to the American Petroleum Institute (API) 19V standard—the highest rating for barrier valves. In addition, the valve has also been tested in alignment with API 14310 validation level V0, confirming gas-tight performance for use as a well barrier. Specifically designed for debris-laden, harsh downhole environments—withstanding temperatures up to 400°F (204.4°C) and pressures up to 15,000 psi

(1034.2 bar)—the Stratos valve was the best candidate to sustain the conditions of the ultra-deepwater wells in this field.

To date, eight of the 25 wells have been completed, deploying the Stratos valve in a mud-filled, high-pressure environment as part of the lower completion. The pre-energized remote opening system allowed the valve to be closed mechanically with a low shifting force, before being comprehensively tested from above and below. The valves then provided gas-tight sealing to ensure a safe, controlled environment for the deployment of the upper completion. Once the upper completion and subsea tree were installed and the subsea hook-up was complete, the valves were opened by applying tubing pressure cycles—sometimes taking place months after the valve was first installed.

Remote opening has been attempted on six valves, and all valves opened as expected without the need for intervention or contingency operations. This flawless performance has allowed the operator to avoid costly delays, totaling to more than \$4.5 million for just the initial six wells alone. The estimated savings for the entire campaign is upwards of \$18 million. The wells continue to be completed and commissioned on schedule, enabling on-time first oil from these critical deepwater assets.

## Challenges

- Complex well design in a high-pressure reservoir
- Difficulty to intervene in harsh, ultra-deepwater conditions
- Required reliable isolation of the lower zone in subsea, multi-zone completions

## Results

- Avoided intervention contingency plans of at least \$750,000 per well
- Delivered flawless execution of remote opening of the valve, saving \$4.5 million to date
- Achieved aggressive completion timeline to get to first oil sooner