

OptiBarrier™ Ball Valve Cuts Valve-Opening Time by Half on Ultra-Deepwater Stimulation Job

Objectives

- Reduce time spent opening barrier valves to optimize support vessel utilization. The customer was unsatisfied with experience using other valves, which took an average of six hours to open.
- Optimize rig time by avoiding pressure cycles with rig mud or cement pumps.
- Consistently achieve reliable valve opening—as opposed to previous customer experience, in which competitor valves took more pressure cycles than planned or required increased pumping capacity.

Our Approach

- Weatherford Well Completions experts met with the customer to discuss an upcoming acid stimulation job on a deepwater well. The customer planned to operate from a subsea equipment support vessel (SESV). To open the valve, they would use a remote operated vehicle (ROV) pumping system—which produces much lower flow output than rig-based pumps.
- The Weatherford team proposed the RFID OptiBarrier valve due to its market-leading ball opening output force and its low-pressure low-cycle-count remote-opening SharkFin™ trigger, which was developed for use with SESV-based ROV pumps.
- The valve was deployed in the open position and programmed for the SharkFin opening trigger. The valve was mechanically closed with a shifting tool after setting the BlackCat seal bore packer and successfully completing the acid-stimulation treatment.
- After closing, the valve was successfully pressure tested. This provided a mechanical barrier for temporary well suspension followed by Xmas tree installation, which enabled the rig to leave the location without delay.

Value to Customer

- The OptiBarrier valve facilitated a higher pressure range during the acid job, enabling a shark-fin pressure signature to be used without risk of inadvertently opening the valve. Other valves have lower pressure limits and pressure cycles that would have prevented use of a pressure signature for valve actuation.
- The ROV pumps were sufficient to reliably open the ball valve, saving up to 54% of operational time (estimated at \$16,500 USD).
- Drilling rig pumps were not required to generate the pressure pulse cycle, eliminating 3 hours of rig time from the opening process (for an estimated savings of \$50,000 USD).
- For the upcoming completion schedule, annual potential savings could exceed \$4 million USD, with 40 to 50 wells being completed throughout the year.
- Remotely operated barriers freed the operation from pressurized control lines to enhance personnel safety.



Using the RFID OptiBarrier ball valve during an acid job, the operator was able to save 3 hours of deepwater rig time.

LOCATION

Offshore Brazil, Santos Basin

WELL TYPE

Oil producer, ultra-deepwater well

HOLE SIZE

14-3/4 in. to 17,800 ft (5,426 m)
8-1/2 in. to 19,735 ft (6,015 m)

MAXIMUM INCLINATION

5°

CASING SIZE AND TYPE

10 3/4-in., 85.3 lb/ft

CASING SETTING DEPTH

17,390 ft (5,300 m)

TEMPERATURE

230°F (110°C)

PRODUCTS/SERVICES

- RFID OptiBarrier
- BlackCat WFX Seal Bore Packer
- WFX0 Quick Connect

