

Trinidad and Tobago

Isolation barrier valve technology helps operational efficiency and run reliability

FS2 fluid loss isolation barrier valves (IBV) remotely opened a record 94 km from platform

CHALLENGE

- Long-distance subsea tiebacks via 94- and 43-km pipeline
- No previous experience beyond 27 km
- Potential delay to first gas caused by NPT

SOLUTION

- FS2 fluid loss IBVs

RESULT

- FS2 valves remotely opened from a record distance of 94 km
- Lower and upper completions installed successfully
- Costs associated with rig intervention eliminated

Overview

The Colibri development project comprises the Cassra and Orchid fields, where two subsea wells drilled in each field tie back to an existing platform via 94- and 43-km (58- and 27-mile) pipeline, respectively. The operator planned to install upper and lower completions in the four subsea wells, which necessitated dual barriers that can operate reliably in the challenging deepwater environment. Halliburton recommended the FS2 fluid loss IBV to provide reservoir isolation and fluid loss control before the upper completions were run. All four FS2 IBVs installed in the Cassra and Orchid wells remotely opened successfully from 94 and 43 km—a remote cycling record for the FS2 valve.

Challenge

The 94-km distance between the Cassra field wells and the host platform was an initial concern because of the lack of previous experience cycling isolation barrier devices more than 27 km (17 miles) away. The operator wanted a tested and proven reliable fluid loss IBV to avoid costly rig intervention and associated nonproductive time (NPT) that could delay first gas. To address this concern, the operator considered several alternative options before ultimate selection of the FS2 IBV.



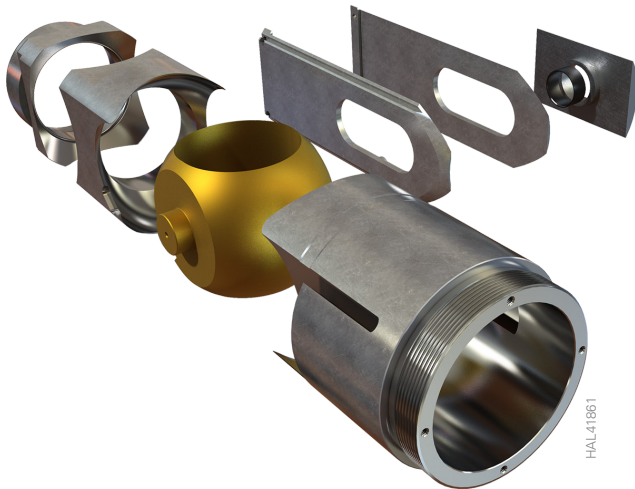
FS2 fluid loss IBV

Solution

Halliburton collaborated with the operator to design a completion solution that addressed the challenges encountered during this project. Thorough project planning was crucial to the success of the operation, which included detailed design reviews, peer reviews, risk assessments, critical well reviews and meetings for both the upper and lower completions. The four completion designs and operational procedures incorporated best practices and lessons learned from previous deepwater operations.

To isolate the reservoir when each upper completion was run, Halliburton recommended its field-proven FS2 IBV. As part of the solution, Halliburton presented the FS2 IBV's extensive successful run history and the proven capability to cycle the valve remotely from long distances after long-term suspension.

The FS2 valve meets ISO 28781 V1 Q1 Type CC requirements and provides a bidirectional, testable barrier for the lower zone by closing the ball valve with a collet shifting tool connected to the end of the service tool string. Additionally, the enhanced debris-tolerant design helps ensure valve functionality in the event of inadequate well conditioning during and after installation.



FS2 fluid loss isolation barrier valve

Remote activation distance record:
FS2 fluid loss IBV cycled open
a record 94 km from platform

Result

The operator installed the lower and upper completions in all four wells as planned. The FS2 valves remained suspended for approximately 12 months before cycling open with 3,500-psi cycle pressure. All four FS2 valves opened remotely from record distances of 43 and 94 km, respectively.

This collaborative solution provided a reliable interventionless wellbore completion barrier that helped minimize production delays and significantly reduced overall costs, which ultimately maximized the asset value for the operator.

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