Reclosable Annular Flow Valve (X-AFV)

Case Study

A UNIQUE ABILITY TO POSITIVELY ISOLATE FLOW FROM PRODUCING ZONES, WITH LIMITED INTERVENTION AND RISK, IS PRICELESS.

Long-Term Functionality and Reliability of the Superior Energy Reclosable Annular and Radial Flow Valves.

After four years of placing a deepwater well on production, an operator in the Gulf of Mexico required zonal fluid loss control to pull the upper completion and replace a subsurface safety valve. The well was completed as a two-zone conventional stack-pack with an intelligent well system and utilized the Superior Energy interventionless (hydraulic) Reclosable Flow Valves for zonal fluid loss control. A Reclosable Radial Flow Valve (X-RFV) and Reclosable Annular Flow Valve (X-AFV) were used in the lower and in the upper zones, respectively.

Both valves possess a unique pressure balancing feature that enables the frac-packing in the upper zone, without triggering the X-RFV in the lower zone or the X-AFV, to open. Once the upper completion is landed and the tree secured, these valves can be remotely opened with tubing pressure to place the well on production. Alternatively, during well intervention, they can be shifted mechanically closed to provide positive zonal isolation. A similar, simple mechanical function will open it back again.

The intervention required the removal of the intelligent well system and replacing the subsurface safety valve. The operator was able to successfully close both valves via slickline, swap out the upper completion, and then reopen to put the well back into production in record time.

This unique ability to isolate produced fluid from the upper and lower zone, without having to circulate kill-weight fluid, reduces cost and overall operational complexity. The proprietary sealing mechanism in these valves is capable of withstanding long-term production, while maintaining positive zonal isolation, and speaks volumes for the historical reliability and performance of Superior's products, in general.

In summary, the X-RFV and X-AFV were initially installed, closed, tested, and opened for production. Four years later, after exposure to harsh deepwater conditions, both valves were successfully closed and opened again, proving the resilience and robustness of Superior Energy's Recloseable Valve Suite. **Both Superior valves performed as designed and stayed true to the client's expectations.**

CHALLENGES

- Providing zonal isolation after several years of production
- Simplify operations and overall project cost
- Reliably close valves for intervention and open back to place the well on production

A SUPERIOR ENERGY SOLUTION

- Reclosable Radial Flow Valve (X-RFV)
- Reclosable Annular Flow Valve (X-AFV)

VALUE

- After 4 years of production, both Superior valves performed operational and zonal isolation functions as designed
- Using Superior valves does not require a costly intervention program
- Both X-AFV and X-RFV feature a unique frac-balancing system not found elsewhere in the market
- Both X-AFV and X-RFV can can be opened and closed mechanically, after being opened hydraulically

Superior ENERGY SERVICES

COMPLETION SERVICES

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