**CASE STUDY**

# TRC-II Safety Valves Eliminate Multiple Deepwater Workovers Costing USD 60 Million Each

Schlumberger valves replace third-party conventional products to address asphaltene challenge in deepwater and ultradeepwater Gulf of Mexico projects

**CHALLENGE**
Replace conventional valves that performed unreliably for high-asphaltene production in deepwater and ultradeepwater Gulf of Mexico.

**SOLUTION**
Use TRC-II* tubing-retrievable charged safety valves engineered with enhanced debris, scale, and asphaltene tolerance.

**RESULTS**
- Replaced third-party subsurface safety valves, improving asphaltene handling through a 50% increase in the initial closure force.
- Eliminated workovers costing the operator USD 60 million each that were frequently required to replace the faulty valves.
- Located, engineered, and delivered valves in only 10 days compared with the industry standard delivery time of 300–360 days.

**Frequent safety valve replacements escalated remedial costs and lost production**
In a major ultradeepwater oil field in the Gulf of Mexico, high asphaltene production was causing persistent early failure of third-party surface-controlled subsurface safety valves (SCSSVs). The result was extended shut-in periods and workovers costing more than USD 60 million each. With a reservoir strategy comprising multiple wells, the operator needed to change the valve supplier and approached Schlumberger for a reliable solution to help achieve its goals.

Schlumberger valves provide a viable alternative with a proven track record
The TRC-II tubing-retrievable charged safety valve features a spring mechanism with gas-powered actuators that enables installation at significantly greater depths than conventional spring-type designs. The valves can therefore be positioned below the hydrate- or asphaltene-deposit regions to prevent deposition or if asphaltenes are produced, the additional strength of the mechanism remains unaffected. The TRC-II valve was selected for all wells in both the subject field and a second oil field operated by the same company in the deep and ultradeep waters of the GOM. Although the operator had initially planned to deplete its inventory of safety valves from the previous supplier, a valve failure in a prolific producer prompted the decision to use TRC-II valves exclusively going forward.

The valves have an excellent track record with more than 500 TRC* series tubing-retrievable charged safety valves deployed in the GOM in the last 20 years—with zero mechanical failures. Approximately 44% of these 500 valves are set in deep or ultradeep water. (Read tech report at slb.com/trc_tr)

**Enhanced asphaltene tolerance and flawless service quality meet production goals**
For this initial well, Schlumberger located, engineered, and delivered a suitable valve in only 10 days; the usual delivery time for SCSSVs in the industry is 300–360 days. For future deliveries, Schlumberger engineers worked closely with the operator’s team and improved asphaltene handling through a 50% increase in the initial closure force. Stringent qualification tests were conducted using an asphaltene proxy before deployment to ensure reliability and performance. Fifteen valves were delivered in the first year, all on or ahead of schedule. All have performed flawlessly, enabling the operator to exceed production targets and helping to secure the economic feasibility of developing these deepwater resources.

Schlumberger engineers worked closely with the operator’s team to further improve the asphaltene handling of TRC-II valves. Fifteen valves were delivered in the first year, on or ahead of schedule, as the operator elected immediate adoption despite an existing inventory of products from another supplier.

*Mark of Schlumberger
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