

Unique Surface Controlled Tubing Retrievable Safety Valve Provides Completion Design Flexibility and Reduced CAPEX for Deepwater Project in the Mediterranean Sea.

CHALLENGES

- » Supply a TRSV suitable for deepwater application with >2500-meter (8,202-foot) setting depths
- » Lower operating pressures to avoid need for customized high-pressure subsea control systems
- » Reduce customer's CAPEX

SOLUTIONS

5 1/2-inch DepthStar® TRSV that provides the following:

- » Industry-leading valve performance and reliability
- » Unconstrained setting depth capability
- » Control line pressure isolation from wellbore to reduce operating pressures
- » No moving seals exposed to wellbore pressure and reduced body connections to improve reliability

RESULTS

- » Successfully manufactured, delivered and installed four 5 1/2-inch DepthStar TRSVs to date

FOUR 5 1/2-INCH, 10,000-PSI DEPTHSTAR® TRSVS SUCCESSFULLY DELIVERED AND INSTALLED IN DEEPWATER, HIGH-RATE GAS PRODUCER WELLS IN THE MEDITERRANEAN SEA

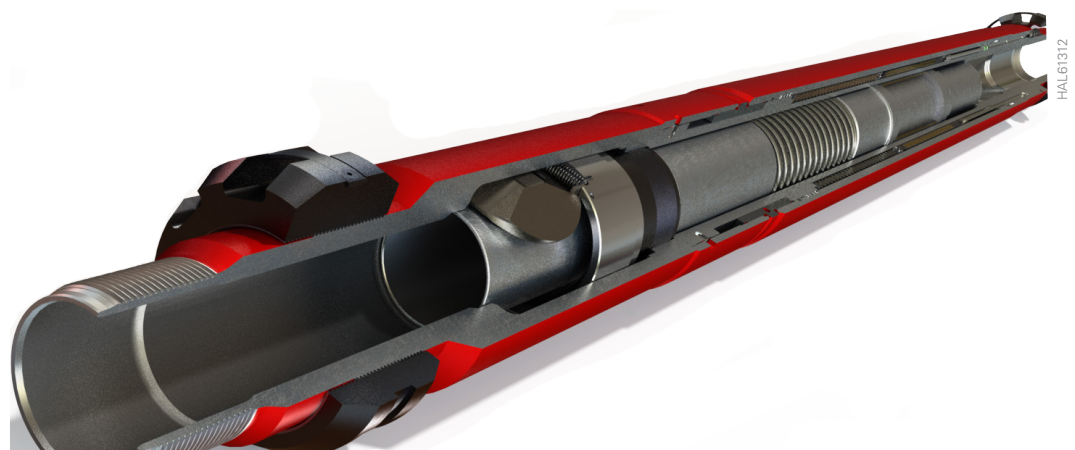
MEDITERRANEAN SEA

OVERVIEW

Halliburton designed and installed four 7-inch x 5 1/2-inch upper completions for the Energean deepwater gas field development in the Mediterranean Sea. The deepwater application necessitated tubing-retrievable safety valves (TRSVs) that could perform reliably at setting depths greater than 2500 meters (8,202 feet). Halliburton recommended 5 1/2-inch, 10,000-psi DepthStar® TRSVs, which utilize a dual flatpack control line to provide full setting depth flexibility. The team installed all four valves at depths ranging between 2550 and 2590 meters (8,366 and 8,497 feet). Full wellbore isolation provided by the magnetic coupler enabled successful operation of each valve at depth using the subsea control system with only 5,000-psi operating pressure.

CHALLENGE

Upper completions were installed in deepwater, high-rate, gas wells, with water depth up to 1760 meters (5,774 feet). The operator wanted to avoid the costs associated with high-pressure subsea control systems, which necessitated a safety valve capable of operation at low pressures. Thorough technical planning was required to ensure the control pressures (both applied and hydrostatic) on the valve actuation line and balance line were understood and accounted for all installation and production scenarios.



DepthStar® Subsurface Safety Valve

SOLUTIONS

Halliburton worked with the operator and determined that a 5 1/2-inch, 10,000-psi DepthStar® TRSV with dual flatpack control lines provided the best solution because it functions independent of setting depth requirements and wellbore pressure. The dual control line setup includes a secondary line to balance the control fluid pressure acting on the operating piston, which enables positioning of the valve at any setting depth. Wellbore isolation from control line pressure, made possible by the magnetic coupler feature, enables low operating pressures that help simplify subsea control system design and reduce costs. In addition, 100% metal-to-metal sealing within the wellbore, rather than a set of moving seals, enhances reliability by helping eliminate potential leak paths that can lead to gas migration into the control line and possible long-term issues in gas wells.



*Unique DepthStar® TRSV provides **SUPERIOR** performance for use in deepwater applications*

RESULTS

Halliburton successfully delivered and installed all four DepthStar TRSVs without issues. The team worked with the service provider to help ensure successful integration with the subsea horizontal Christmas tree and control system, as well as the tubular running provider for safe installation and operation of the DepthStar TRSV via the dual flatpack control lines.

The DepthStar TRSV's unconstrained setting depth and low operating pressure provided full completion design flexibility and reduced subsea control system complexity, which improved reliability and reduced Energean's subsea CAPEX across all four deepwater gas wells.



DepthStar® TRSV provides Energean with full completion design flexibility, improved reliability and reduced subsea CAPEX costs across four deepwater gas wells.

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