Plunger lift solution increases production in challenging liquids-rich Saudi Arabian well

CHALLENGES

In March, ChampionX Artificial Lift in the Europe, Middle East and Africa (EMEA) geomarket completed its first plunger lift installation for Saudi Aramco in the Kingdom of Saudi Arabia. The field trial project team was led by the ChampionX EMEA team in Bahrain, but with integrated solutions and support from PCS Ferguson, Norriseal-Wellmark, and Theta Automation and Optimization.

The candidate well selected for the trial had experienced a steep decline rate, typical of an unconventional well. It produces liquids-rich gas (70-120 bbl/MMcf) and the production stream is "critical sour" with 3.5% hydrogen sulfide and 1.5% carbon dioxide. Moreover, the bumper spring landing depth was nearly 10,000 feet.

SOLUTIONS

Working in concert with PCS Ferguson, Norriseal-Wellmark and Theta engineered a fully NACE-compliant plunger lift solution with the flexibility to accommodate different plunger types and control valve trims for optimal performance across a range of production rates and gas-to-liquid ratios. The installation included local data acquisition and automated reporting through XSPOC, with a secure communications link to the Saudi Aramco network.

RESULTS

The installation was completed in a single day, and the well has been continually producing on plunger lift since March 9, 2021. By mid-May, the plunger had traveled more than 10,000 total miles and both gas and liquids production from the well had increased.

Both natural gas and condensate production increased from the liquids-rich field trial well after installing the fully NACE-compliant plunger lift solution.



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