Successful Barrier Gas Lift Valve Changeout Using an Upside-Down Kickover Tool in the Gulf of Mexico

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Abstract:

Two assets in the Gulf of Mexico—one a dry tree and one subsea—successfully conducted GLVCO gas lift valve changeouts (GLVCO) using a linear actuator/stroker with an upside-down barrier kickover tool to pull and run barrier valves into their barrier pockets with zero nonproductive time for all intervention runs in both wells.

GLVCOs were necessitated by loss of tubing integrity during or shortly after unload. The wells were installed with dual-pocket barrier gas lift mandrels, which are dual pocket, one of which being inverted to house the barrier valve. This provides tubing integrity when the traditional operating valve is removed. These wells required the deployment of a unique upside-down barrier kickover tool , which had not been run to service with an inverted-pocket side-pocket mandrel since the late 1980s. The dry tree well in this operation was the first to deploy this tool, and the subsea well was the second.

GLVCOs are commonly considered routine but can be unforgiving in the event of failure and quickly lead to workovers. The use of upside-down kickover tools magnifies the risks. Each well followed the same process, included integrating multiple services into a single procedure, performing test well system integration tests, and conducting thorough contingency planning to control risks. The partnering of the operator's and service companies' experts was instrumental in the process, particularly in the system integration test conducted before going offshore. All GLVCO interventions were executed flawlessly to regain tubing integrity, clear leak-inducing debris, and restore the wells back into production.

The critical learnings from front-end work and the successful GLVCO are multifaceted, spanning gas-lifted completion design practices and GLVCO troubleshooting practices. These learnings were rapidly transferred into step-by-step intervention procedures that proved seamless across all companies involved during execution of these GLVCO, resulting in zero misruns and zero nonproductive time attributed to the GLVCO.