Title: Remote Operated Gas Lift Valves Trials and Lookback in the Permian Basin

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Abstract

The pilot project on remotely operated gas-lift valves (ROGL) aims to evaluate the performance and reliability of various ROGL systems in enhancing production efficiency and achieving autonomous operation. Initially identified as a strategic opportunity in 2018, the project involves trials with three vendors: Vendor 1, Vendor 2, and Vendor 3, across twelve wells in the Permian. These valves consist of remotely operated adjustable size orifices in a multi-station gas-lift system, providing pressures and temperatures inside and outside the tubing and can be opened and closed independently.

Early trials in Midland and Delaware basins showed an average of 30% production uplift. A new design for the technology was implemented in a Delaware Basin asset, allowing the valves to go from 0-100% and be controlled remotely with similar measurement capabilities. The trials demonstrated a 45% reduction in downtime over one year of operation.

Recent trials have shown mixed results, with Vendor 1 achieving a 26% reduction in downtime but facing reliability issues with motor/valve operation. Vendor 2 demonstrated a significant production uplift in the range of 16% over 307 days but encountered software-related reliability issues, flowback-induced mechanical issues, and an installation issue in one well. Vendor 3 experienced several reliability issues, leading to a drop in production performance.

The key objectives of these trials include assessing system reliability, autonomous operation, and production uplift. Despite the challenges, the project has provided valuable insights into the potential of ROGL technology, and glimpses of what ROGL technology can achieve and unlock were seen. Due to the nascent nature of the technology, lessons learned will be applied to new iterations of the design to improve reliability and fully enable autonomous operation.