

## Pilot Application of Remotely Operated Gas Lift Valves in Permian Basin

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### Abstract

We present a review of new gas lift technologies designed to deliver increased production rates when compared to conventional gas lift systems and demonstrate the applicability of these systems in unconventional development wells in the Permian Basin.

We focus on results from wells employing electrically operated downhole injection technologies that provide a deeper point of injection and conserve surface injection pressure, reducing flowing bottom hole pressure. We present wells that represent a range of the inflow performance spectrum in the Permian Basin. These wells were completed with remotely operable injection stations to understand the impact of a variety of flowing conditions.

Several Gas Lift indicators are used for efficiency evaluation criteria: Depth of injection, multi-pointing elimination or reduction, and properly-sizing injection port to enable gas injection at critical flow. Downhole and surface conditions were continuously and remotely monitored, and included pressure and temperature sensors at each station, both inside and outside of tubing.

We present results that: enabled tuning of annulus pressure calculations; provided reliable gas lift modelling and optimization when compared conventionally equipped gas lift wells; demonstrated the benefits of preserving Gas Lift pressure for single point of injection as deep as possible. These results delivered performance increase, reduced uncertainty in diagnostics and well performance analysis and enhanced completion designs that included the remote operated valves. In all situations the depth of injection was moved further down the well,

eliminating multipoint injection observed in conventional gas lift equipment.

Currently, there are several electrically operated gas lift valves available on the market with similar capabilities but vary in design and implementation. Ongoing evaluation of these technologies enable maturation of this technology and creates the opportunity to combine it with integrated production optimization and autonomous operations in the future.

