

Title: Advantages of Plunger Assisted Gas Lift (PAGL) Over Conventional Gas Lift in the Eagle Ford Shale Play

Author(s): JD Spencer, Flowco Production Solutions
Dave Hughey, Validus Energy

This case study focuses on the efficiencies gained and the cost-savings realized by a private operator in the Eagle Ford basin and the overall added value of installing plunger-assisted gas lift (PAGL) over a gas lift system alone. The operator was facing production challenges and well failures that the hybrid system has optimized. We have monitored the candidate wells before and after the addition of the plunger and calculated the decrease in operating expenses (OPEX), as well as the increase in production and overall revenue. Historical data from the operator will be presented including production pressures, injection rates, and operating methodology. The scope of this paper will focus on the quantified results from the field.

Gas lift is an extremely effective method of artificial lift, especially in wells with high bottom hole pressure or a high gas liquid ratio. As the economic efficiency of a gas lift system declines, however, combining a plunger with gas lift can optimize production, lower the flowing bottom hole pressure (FBHP), and extend the economic life span of the artificial-lift system. PAGL systems can significantly reduce OPEX with the reduction of necessary gas lift injection while maximizing fluid production and the added benefit of addressing the buildup of paraffin, scale, and debris. Many operators are adopting this practice in unconventional, horizontal well bores to accelerate bottom hole pressure reduction to increase production. The candidate wells for this study were identified by the operator for measurement and observation.

The specific type of plunger used for this study is a bypass-style plunger. Other plunger types are elected for similar hybrid artificial lift such as gas-assisted plunger lift (GAPL).

As the documented cost reductions and operating benefits of this hybrid artificial lift method are proliferating for mature gas wells, plunger-assisted gas lift wells have now been adopted by many operators in even global applications.