Title: High-Pressure Gas Lift in Unconventional Assets – A Journey from Pioneer to Practice

Introduction: This presentation traces the journey of High-Pressure Gas Lift (HPGL) application, starting from its pilot in ExxonMobil's heritage Pioneer asset team to its current application in unconventional assets. It highlights the significant advancements and lessons learned in various aspects of HPGL implementation.

Early Pilot and Deployment Evolution:

- **Early Pilot:** The early HPGL applications were carried out by ExxonMobil's heritage Pioneer asset team. The initial success paved the way for extended deployment across the full basin.
- **Deployment Evolution:** Following the pilot runs, subsequent applications of HPGL tested different downhole designs, incorporating single orifice valve and Side Pocket Mandrels (SPM) to enhance its efficiency and effectiveness.

Current Scope and Status in Unconventional Assets:

- **Unconventional Applications:** HPGL has evolved into an integral part of asset-wide artificial lift strategy in unconventional assets, particularly in deeper formations where traditional lift methods face challenges. Its ability to handle high gas-liquid ratios (GLR) and solids production makes it a preferred choice.
- **Performance and Reliability:** HPGL has demonstrated consistent performance and reliability in unconventional wells, providing a reliable and cost-effective artificial lift solution.

Key Lessons in HPGL Implementation:

- **Planning:** Effective planning is critical for successful HPGL implementation. This includes understanding reservoir characteristics, depletion plans, and expected well performance under different operating conditions.
- **Facility and Tubing Design:** Designing facilities to accommodate HPGL systems involves considerations for compression capacity, surface facility modifications for booster compressors, and downhole configurations.
- **Operations:** Efficient operations require continuous monitoring and adjustment of injection rates to optimize production. Integrated data-driven approaches have proven beneficial.
- **Surveillance:** Regular surveillance and diagnostics help identify and address issues promptly, ensuring optimal performance of HPGL systems.

- **Optimization:** Traditional optimization techniques, such as nodal analyses and decline curve analyses, are employed to maximize production and life of well artificial lift planning.

- **Transitions to Alternative Lift Methods:** Transitioning from HPGL to other lift methods, such as ESPs and conventional gas lifts, is critical as well conditions change. Understanding the pros and cons of each method is essential for making informed decisions.

Comparison with Electric Submersible Pumps (ESP) and Conventional Gas Lift:

- **HPGL vs. ESP:** HPGL offers several advantages over ESPs, including higher tolerance for solids, better performance in wells with high GLR, and high water cut.

- **HPGL vs. Conventional Gas Lift:** Compared to conventional gas lift, HPGL provides more consistent and efficient lift in early well life.

Conclusion: The application of HPGL has significantly impacted the Permian Basin production. It offers a reliable and efficient artificial lift solution for unconventional assets. By understanding the key lessons and comparisons with other lift methods, operators can make informed decisions to optimize operation efficiency and profitability.