Title: Gas Lift in Unconventionals – Is Gas Lift Optimization in Real-Time Possible?
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OBJECTIVES/SCOPE:
Once gas lift is successfully implemented in Vaca Muerta Unconventional formation, Argentina, the next step is optimization. This document summarizes the drawbacks in achieving this goal by the conventional methodologies, and the pursuit of innovative ways of managing the field.

METHODS PROCEDURES, PROCESS:
During Gas lift Implementation, we optimized wax deposition control, slickline management, troubleshooting diagnoses and frac hit recovery of production. But we found difficulties in optimizing gas Lift injection by conventional ways.
So, we started the process of upgrading from a Real Time Surveillance & Remote Operated Field to an Intelligent Field with gas lift optimization & control, Virtual Flow Metering, and Enhanced Drawdown Management.
We are going through the first stage implementing a Pilot Project of an AI-based model built that included developing an Intelligent dashboard.

RESULTS, OBSERVATIONS, CONCLUSIONS:
Several projects were stablished for gas lift optimization.

Work was done to improve prevention and mitigation of wax deposition. We tested not only several chemicals, but different ways of injecting it into the system, via capillary string and via gas lift. We found alternative treatments for each stage of production and reduced wax deposition.

We reduced slickline interventions by running wellbore completion with IPO valves installed instead of dummy valves. We also improved efficiency by changing the slickline unit to a faster one and smarter slickline scheduling.

For gas injection optimization we went through the conventional methodology, a performance curve building. We gain knowledge, but mostly that this was not the methodology to optimize our field. Curves were not concluding. Wells took so long to stabilize, that production decline affected the results.

That's when the AI-based model became relevant. In addition to global network optimization, gas optimization should be at PAD level, not at well level. Additionally, severe slugging could be improved by having gas injected automatically set in function of the variables monitored real-time.

We want to share our vision of what we believe is the state of art of an unconventional gas lift operation: an artificial intelligent field, that is full fill instrumented and monitoring implemented. Finally, that Unconventional well production complexity must be studied and shared to have a better understanding from the operational point of view.