Gas Lift Design Automation

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Abstract:

Objective:

In the evolving landscape of oil and gas industry, automating the gas lift design for the life of well remains a paramount challenge. This methodology backed with automation presents an innovative approach to gas lift design automation, showcasing an in-house developed tool that automates the entire design processes for the life of well.

Methods, process:

The innovative tool, built using Visual Basic Open Server, seamlessly integrates commercially available gas lift & Nodal Analysis software with Excel to improve the design efficiency. At the core of this tool is the capability to input initial well and reservoir related data, from which the tool generates numerous design combinations and sensitivities to various parameters. The tool's robustness is exemplified by its ability to process a comprehensive dataset covering a vast array of life of well scenarios through its integration with Prosper application.

Result, Conclusion:

The heart of our presentation is the automated execution of gas lift design across these scenarios, leading to a bespoke, fit-for-purpose gas lift design. We delve deep into the tool's capacity for thorough analysis, ensuring optimal design performance for a range of reservoir parameters. The tool's success is evident in its ability to not only expedite the design process but also enhance precision and reliability for the gas lift system design to cover the various uncertainties in the production system.

Novel/additive Information:

A key highlight of this advancement is the significant reduction in human error, ensuring a comprehensive and error-free approach without the risk of a scenario falling through cracks. The tool's speed and robustness has reduced the design time from 5-6 hours to approximately 1 hour. As well as minimizing mundane errors, the tool has maximized the efficiency and robustness of gas lift design.