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First Offshore Application of Through Tubing Gas Lift Enhancement Tool: A Success Story in Offshore Sabah

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Presentation Outline

- Field Overview
- Concept of gas lift enhancement tool
- Selection, Analyse & Recommendation
- Deployment & Execution
- Results & Conclusion



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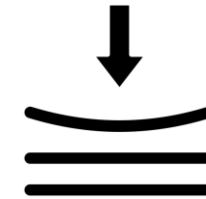


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Field B, is an oil producing field Offshore North West Coast Of Sabah, discovered in 1976 and is now entering the late life stage after 44 years of production.

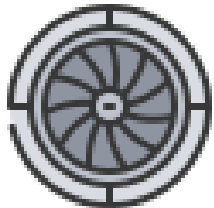
The field is experiencing operational reliability challenges due to its remote location, unmanned platform and jacket, depleted reservoir pressure, a low Gas-Oil Ratio, and insufficient gas availability for sustaining the field process stability.



All producer wells are gas-lifted and depend solely on sufficient associated gas to sustain operations, with compressor functionality being critical, as this field has no external gas support.

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Concept of Gas Lift Enhancement tool

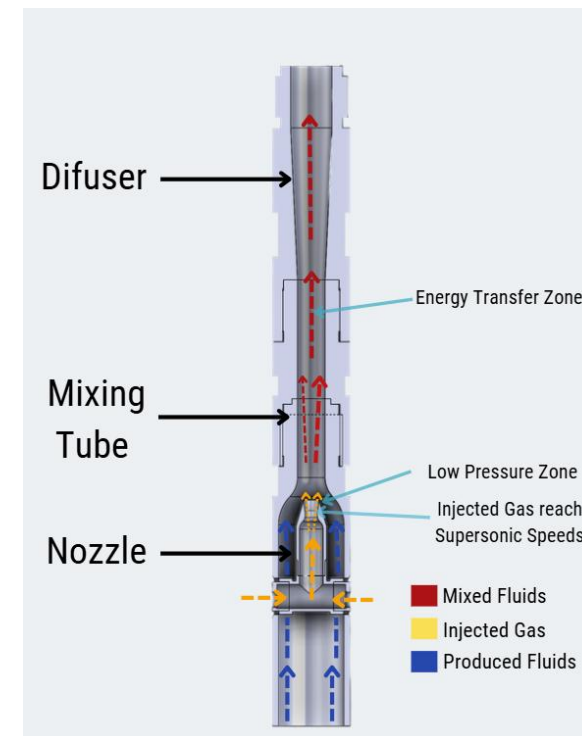
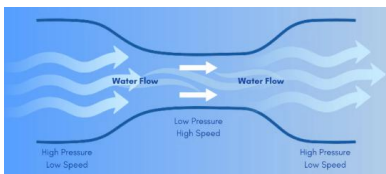


The Gas Lift Enhancement tool uses injected gas as a driving force to increase drawdown and boost production. Alternatively, the gas lift consumption can be reduced while maintaining the pre-installation conditions and performance to free up lift gas volumes for other producing wells.



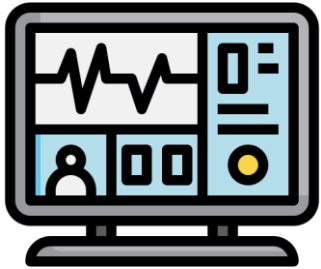
This technology functions as a booster for gas-lift wells, increasing production while reducing lift gas requirements as well performance declines.

The gas lift enhancement tool operates on the Venturi principle. Injected gas passes through a nozzle, converting pressure energy into kinetic energy and creating a localized low-pressure zone. This suction effect increases drawdown and promotes reservoir fluid inflow into the tubing. The produced fluids then mix with the injected gas and continue upward, improving lifting efficiency and well performance.

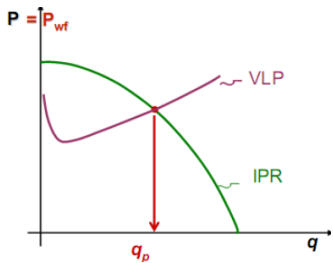


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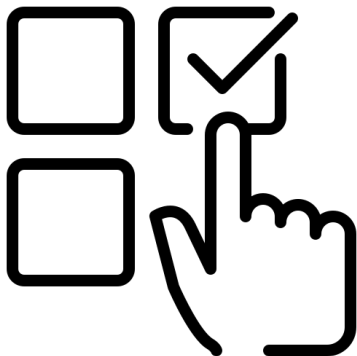
Selection and Analyse Process



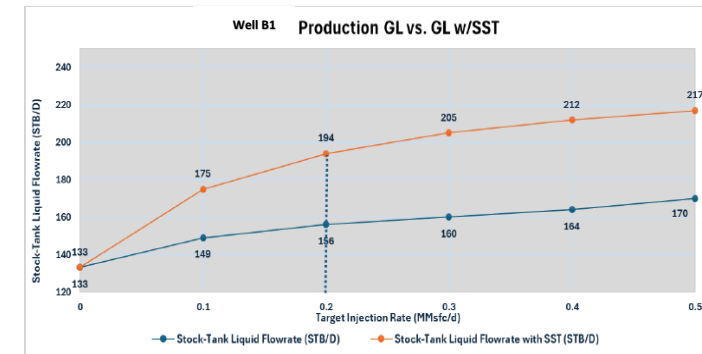
The operator collaborated with the service partner to evaluate well performance, designed and simulated the technology application, and select candidates for a field trial.



Nodal analysis software was utilized to model tool performance curves, quantifying expected drawdown gains and corresponding production uplift.



Three candidate wells were selected for the field trial. These were selected based on the highest gain wells, well intervention package availability and the targeting most remote jacket in the field.



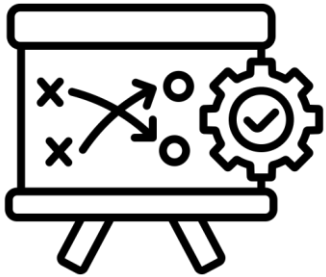


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Deployment and Execution



The tool is installed through-tubing using slickline deployment, straddling the existing installed gas lift orifice. Four runs are required to install the tool: a lower tubing stop, a lower pack-off, the gas lift enhancement tool with upper pack-off, and an upper tubing stop.



The installation was completed in 1-2 days under 12-hour operations (day tripping to location), subject to tool length and the well conditions and depth.

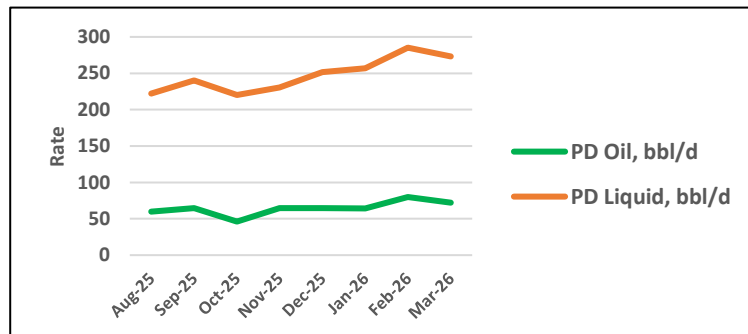


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Results & Conclusion

The gas lift enhancement tool was successfully installed and commissioned in three oil-producing wells in the B field. The Project was completed within a timeframe of 4 months, resulting in enhanced production efficiency across the B field.

Following installation, production stabilized with only 5–10% tubing head pressure and temperature fluctuations (previously 20–50%), resulting in a 20–30% production increase and a 70% reduction in gas lift consumption.





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