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Gas lift optimisation performed using simulation tools, nodal analysis and network modelling system techniques increases production



Objectives/background

- Mature, multi-platform asset with 17 active wells (14 platform and three subsea)
- Production network comprising three production pipelines, plus one gas lift and one gas export pipeline
- Lift gas supply was perceived to be inadequate for current production conditions
- A further threat was the future addition of four platform infill wells
- Additional challenges included:
 - Determining how much gas lift was being directed to each well
 - Uncertainty of individual well production due to infrequent well testing
 - No immediate scope to gather downhole data

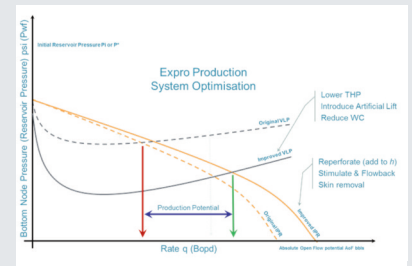
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- Early focus given to a review of historical data (from the well intervention operations, reservoir engineering, projects and flow assurance studies) allowing robust well and system models to be produced – revealed a lift gas injection issue on one well which was resolved without intervention
- Smoothing out artificial lift inefficiencies allowed other issues, such as inflow performance, to be examined
- Unsuitable well test information was screened out

- A method proposed by the client to derive a lift gas metering calibration error was scrutinised and compared with two other developed methodologies; this resulted in an error correction being implemented with confidence
- A matched suite of nodal analysis well models and a surface network model were produced as part of an integrated production model (IPM)
- Gas lift operations training was provided to offshore personnel in order to reinforce knowledge transfer
- Collaborations with Expro's cased hole services team to provide a range of tools to help identify physical well integrity issues including corrosion, scale, deformation and leak detection

Value to client

- Gas injection lift gas was optimised to yield an additional 900 STB/day
- The IPM allowed key wells to be targeted for future intervention, and well testing schedules were optimised to allow asset production to be adequately monitored
- The calibrated integrated production model allowed the onshore production team to provide reliable well rate potentials to the offshore production team: building trust



Contact

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