Expro Excellence

Increasing production and reducing emissions through closed-loop gas recycling

Well Flow Management | Emissions Management



Objectives and background

- In a late-life oil field, reservoir pressures were declining across several onshore wells. Production performance deteriorated and several remote wells became uneconomic to operate without artificial lift
- Conventional gas lift required facility upgrades, pipeline infrastructure and external power sources, making them difficult to justify for isolated wells and satellite fields
- Operators are facing increasing pressure to improve operational efficiency while reducing environmental impact and make better use of produced hydrocarbons

A solution was needed that could:

- Restore and increase production from low-pressure wells
- Avoid major infrastructure investments
- Reduce reliance on external fuel and power sources
- Maximize utilization of produced gas that would otherwise have limited value at remote locations
- Reduce flaring and improve sustainability performance while maintaining operational flexibility

Expro Excellence

- Expro deployed an autonomous gas lift technology to convert associated gas from a waste product into a valuable energy resource
- The system separates oil, water and gas directly at the wellsite before compressing and reinjecting the recovered gas back into the well for gas lift
- The same gas is also used to power the package, creating a self-sustaining production system that requires no external power supply
- Unlike conventional gas lift developments that often require extensive compression and distribution infrastructure, this system creates a local circular-energy process
- This closed-loop approach enables operators to maximize the value of produced gas while minimizing waste and infrastructure requirements
- The portable, containerised system can be installed within days and provides continuous real-time monitoring, optimization and remote surveillance of production performance

Value to the client

- We successfully demonstrated that associated gas can be reused as both an energy source and an artificial lift medium while simultaneously increasing production performance

Improved production

- Oil production increases of between 50% and 150% were achieved across candidate wells
- Cumulative production gains exceeded 219,000 barrels during project operations
- Real-time optimization improved efficiency by matching gas injection rates to production requirements

Environmental and operational benefits

- Closed-loop gas capture and reuse maximized utilization of associated gas generated by the wells
- Minimized unnecessary flaring, gas handling and waste
- Self-powered operation eliminated the requirement for external power infrastructure
- Reduced the need to import fuel and lift gas
- Supported lower-footprint production strategies for remote and mature fields

Commercial gains

- Unlocked and fast tracked late-life production revenue
- Avoided major capital investments for permanent compression facilities and external energy sources

"The system enabled our customer to unlock additional oil production while improving resource efficiency and reducing emissions through the reuse of associated gas.

Rather than treating produced gas as a waste stream or requiring additional energy imports, the system converted the gas into a working fluid that simultaneously powered operations and enhanced well performance."

Lower carbon footprint



Enhanced production



Increased revenue



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