

## Expro Excellence

# Advanced production logging in a complex multi-zone gas condensate well

## Well Intervention & Integrity



### Objectives and background

- An operator required an advanced production logging evaluation of a complex multi-zone gas condensate well to understand zonal production contributions, assess condensate drop out risk, verify completion integrity, and identify any crossflow or water production
- Due to unexpected, stratified flow conditions and limitations of conventional logging methods, Expro deployed advanced production logging technologies to provide a comprehensive assessment of well performance and support informed reservoir management decisions

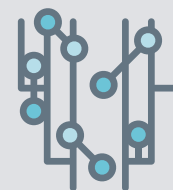
### Expro Excellence

- To overcome the challenges associated with a complex multi-zone gas condensate well, Expro deployed its advanced Multi-Array Production logging Suites (MAPS), incorporating mini spinners for phase velocity measurement combined with capacitance and resistivity sensors for accurate phase holdup determination
- Recognising the stratified flow conditions expected within the well, Expro selected MAPS specifically for its ability to deliver reliable diagnostics where conventional production logging technologies can be limited. The logging system was conveyed using a tractor and operated in surface readout mode, enabling data acquisition under flowing conditions, followed by a shut-in survey to evaluate both flow behaviour and completion integrity
- A detailed pre-job simulation was performed to confirm operational feasibility and optimize survey design. Throughout, the operation, continuous line tension monitoring ensured the safe deployment of the advanced toolstring and capture of high-quality data at the planned gas production rates
- By combining advanced production logging technology with Expro's specialist interpretation expertise, the survey accurately quantified zonal production contributions, characterized complex downhole flow dynamics, and provided the operator with a comprehensive understanding of well performance and completion integrity

### Value to the client

- The survey delivered critical insights into well performance, enabling the operator to make informed reservoir and production management decisions. Analysis confirmed that the lower sand was the dominant production interval, contributing approximately 86% of total production, providing a clear understanding of current production allocation across the reservoir
- The evaluation confirmed no water production from the reservoir, reducing concerns around unwanted water influx and associated production challenges. While a standing water column was identified across the lower sand, interpretation indicated that it was likely recirculating within the wellbore rather than being produced from the formation, improving the operator's understanding of downhole flow behaviour
- Expro's diagnostics also verified that the well was producing predominantly gas, with no evidence of liquid condensate accumulation downhole. This confirmed that the existing pressure drawdown strategy was sufficient to maintain optimal performance with condensate related impairment
- Additionally, the survey provided assurance of completion integrity, with no evidence of leaks, annular flow paths, or crossflow between reservoir zones. The resulting insight into zonal performance, fluid behaviour, and completion condition enhanced production forecasting accuracy and supported more effective reservoir management strategies

### Well integrity



### Insight

