Expro Excellence

Expro successfully perforates and tests an HPHT well with underbalanced annulus, onshore India

DST - TCP

Customer challenges

- Expro has a contract with ONGC in India for DST-TCP and Sampling services, which is the largest, most active offshore E&A contract in the world. The contract start-up was in 2016 running for three years, with a second 3-year term awarded in 2019
- This DST-TCP contract is applicable to Pan-India activity but mainly performed offshore. The 'shoot and pull' perforating job was completed in one of the HPHT onshore wells in the Rajahmundry area
- Due to high expected formation pressure and high gas flow rate, Expro proposed that the well should be executed in a controlled manner, therefore utilising DST tools
- The main challenge the customer faced was not having suitable test fluid (brine) with enough weight (16.84 ppg) to carry out the operation with an over-balanced annulus

Expro Excellence

- Expro collaborated with the client and suggested performing the job with underbalanced fluid in the annulus and designed a DST-TCP bottom hole assembly, where specific tools would be operable in the well, throughout the test; in both underbalance and overbalanced surroundings, the latter during well-kill operations
- Correct Job design and planning was critical and made more difficult with the protracted nature of communications with the client, due to Coronavirus restrictions
- Operations were challenging with all TCP gun loading at the rig site, though this also done on offshore wells with 12 packages on contract. DST tool servicing is also undertaken in the field, which adds to the challenge
- Crew movements were limited and problematic due to Coronavirus, however personnel travel and accommodation arrangements were carefully controlled; also utilising local staff from the field pool to minimise exposure
- The rig on location had not performed DST-TCP operation before, let alone the HPHT conditions and underbalanced annulus. The Expro team ensured that they were fully engaged with the program, to ensure readiness and safe operations
- Early in the job, the rig pump failed; hence only the cement unit was available, however Expro recommended a second pump was mobilised to the location to ensure safe and efficient operations
- Having flowed this high rate gas well at FTHP around 8,000 psi, well kill was a major operation, also given the client wanted to recover as much brine as possible; brine procurement hindered, again due to the pandemic. The well was successfully killed displacing brine with 16.9 ppg water based mud
- DST tools were deployed in the well for 22 days with a max BHP of 352 deg F, and were fully functional throughout
- The solution provided by Expro enabled the client to perforate and test the zone safely and to achieve their well objectives

Value to the client

- Zero HSE events, no service quality issues
- Enabled the well to be perforated and tested; hence met client's schedule and objectives.
- Downhole memory data was successfully recorded and retrieved from the gauges, allowing full analysis of the test data
- Significant cost savings with the recovery of the brine form the well, moreover enabling use on an upcoming well
- Letter of appreciation from client commending Expro's safety and service quality performance in extremely challenging conditions

> **"We would like to congratulate and express our sincere appreciation to Expro for successfully executing DST-TCP HPHT job at Rajahmundry onshore."**
>
> Client

Quality standard

Safety

Contact

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