Expro Excellence

Downhole expertise enables CCS well test success

Sustainable Energy Solutions | DST / TCP

Objectives and background

- Harbour Energy drilled a Carbon Capture and Storage (CCS) appraisal well on the EXL 006 Havstjerne license in Norway in April 2025
- A well test was planned to characterise the reservoir and dynamic flow conditions during an injection test into the target aquifer
- The reservoir was untested and there was no data to build an accurate simulation model, which is a critical part of determining the viability of the project
- Data objectives for the well test included injectivity potential, injection rates, permeability, skin, Pi, connected volumes, boundary effects, heterogeneity and water samples for the tested zone
- A key objective was to manage the potential for high skin effect during a water injection test into a saline aquifer

Expro Excellence

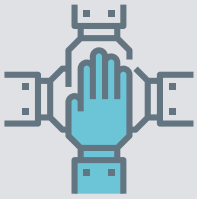
- Expro was contracted by Harbour Energy to provide a CCS DST string proposal for a water injection-fall off DST
- Using experience from recent CCS injection tests in Norway, Expro applied lessons learned into the risk based design and planning of the well test operations
- Expro proposed an optimized DST tool string to meet the test objectives, while reducing cost, time and complexity, based on the none-rotational ERP packer and the ExACT combined tester and multi-circ valve as the main operational tools
- The work program and DST string were designed with a contingency to mitigate high skin values, seen in previous CCS injection tests, by including the option for fracing the well

Value to the client

- The injection test was conducted successfully with all data objectives met
- The planned contingency test was implemented enabling contact with fresh formation fluid, and allowing the full injection rate target with an increased radius of investigation into the reservoir
- Excellent communications and a collaborative approach between Expro and Harbour, resulted in precise project delivery
- Best practices, experience and knowledge from recent CCS appraisal projects were incorporated to enhance operational performance
- The well was finished 23 days ahead of budgeted time, where Expro contributed to this excellent result together with the drilling contractor
- Data from the well test enabled Harbour Energy to fill the geology model and to build a reliable simulation model, enabling future commercial decisions for the Havstjerne CCS project

Reduction of rig time

Partnership



References

Web links:
- Norwegian Offshore Directorate
- Havstjerne

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