

Case study: Offshore Scotland

XACT service aided SureCONNECT system in first fullbore fiber-optic monitoring of water injector well

Baker Hughes worked with a major operator offshore Scotland to implement the **SureCONNECT™ downhole intelligent wet-mate system**, successfully linking fiber-optic cable throughout the entire length of a water injector well.

The SureCONNECT system is a modular wet-mate system designed to enable downhole connection of electric, hydraulic and fiber-optic lines.

With the SureCONNECT wet-mate system, operators can achieve real-time monitoring and control across the entire wellbore of multi-trip completions—enabling them to make data-driven decisions to optimize reservoir performance and proactively mitigate risks, such as equipment failures.

The operation resulted in successfully mating six fibers—each the size of a human hair—between upper and lower completions, almost a mile (1,329 m) below the sea floor. The operation also included two zones with **SureVIEW™ fiber-optic pressure/temperature gauges** in the lower completion at toe (2,607 m) and heel (1,336 m) for continuous monitoring of well data and distributed temperature sensing (DTS) data across the entire completion.

Eliminate guesswork from your operations

The **XACT™ bi-directional acoustic telemetry service** was deployed as part of the running string and aided in navigation through the challenging openhole section. With the XACT service it's possible to eliminate the guesswork to get a clear, real-time understanding

of the downhole environment—driving efficiencies safely and predictably in a variety of well activities from spud to well abandonment.

Unlike mud pulse telemetry systems which are limited by wellbore flow conditions, the XACT service transmits digital data along the drill pipe via encoded sound waves. This means it can be used effectively during tripping, completion installation, liner running, and cementing.

Make objective decisions

Real-time monitoring of run-in parameters allowed the operator to set down more weight at surface than was previously planned using torque and drag modelling analysis. The XACT service's live data transmission also confirmed the amount of compression at the running tool, allowing set down weight to be adjusted at surface enabling the tool's efficient release, regardless of flow, formation, or depth.

Although the first of its kind in a water injector well, this was the second SureCONNECT system with the XACT service installment for our customer in this field. They are very pleased with the results and reported that completion time on this second well was improved by approximately two weeks as a result of incorporating learnings from the first well, including collaborative detailed lessons learned sessions with Baker Hughes. Having access to the pressure/temperature data in this injector well will give them the ability to interpret and compare injection data throughout their complex reservoirs.

Challenges

- Harsh, offshore environment
- Water injector well with four separate zones in the lower completion
- Continuous production logging
- Deployment of continuous fiber-optics across the full wellbore

Results

- Deployed the SureCONNECT system to achieve fiber-optic, real-time monitoring across the entire wellbore, for the life of the well
- Linked two lower completion zones with SureVIEW P/T gauges
- Enabled operator to make data-driven decisions to optimize reservoir performance and proactively mitigate risks
- Flawlessly executed installation without any HSE incidents two weeks ahead of schedule, achieving approximately 50% reduction in completion time from the previous installation