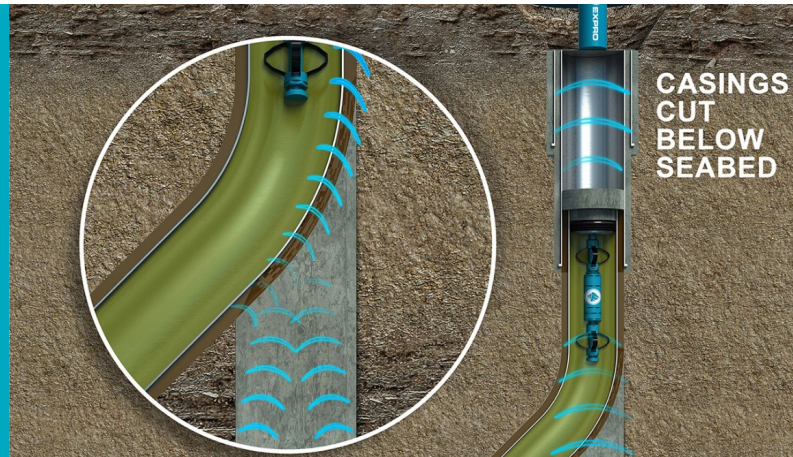


## Expro Excellence

# Open-hole barrier data transmissions

### Wireless Well Solutions



#### Customer challenges

- An oil and gas company active in the Norwegian North Sea identified a seismic anomaly offset from a previous discovery and developed a test plan for a subsequent appraisal well
- The operator committed to perform a Drill Stem Test and as part of the test objectives, there was a requirement to continue capturing high-value subsurface pressure data beyond the DST and well abandonment in order to delineate the southern part of the original discovery
- During the appraisal operations, the well objectives changed and there was a last minute requirement to drill and test a sidetrack
- A cased section above the liner hanger needed to be removed and the pilot well to be permanently abandoned with a rock-to-rock barrier restored in order to safely and efficiently drill the sidetrack
- The customer wanted to ensure data from the pilot hole was still accessible, but this meant the CaTS signal had to transmit across an un-cased open-hole section; something not previously attempted before

#### Expro Excellence

- Our solution was to install an Advanced Reservoir Testing (ART) permanent monitoring system using two CaTS Gauges in the pilot hole on the DST tailpipe
- The gauges were installed below a plug inside 2-7/8" tailpipe assembly below the packer using slickline
- The casings in the pilot-hole were then cut and retrieved, and the section was permanently abandoned with the gauges left behind
- This abandonment method simplified sidetrack operations, as it was not necessary to mill a window in the casing and allowed a rock-to-rock plug to be installed for well integrity assurance
- A Subsea signal pickup device was engineered, allowing the CaTS subsea transceiver to be installed within cut casings below the mudline, this ensured the abandonment complied with NORSOK D-010 regulations

- The gauges were programmed to ensure that full pressure build-up data was captured, and the reservoir was continuously monitored from the DST through to abandonment
- The system was commissioned and set up for receiving Pressure & Temperature data for a period of 1.5 years
- Over 20 years proprietary expertise with modelling downhole Electromagnetic signal propagation, combined with our extensive global record ensured we delivered a successful solution within a dynamic operational environment.
- Expro delivered another world's first for EM data transmission to surface across an open-hole well section without casing

#### Value to the client

- The CaTS permanently installed monitoring system converted the well into a high-value monitoring asset that allowed reservoir Pressure and Temperature data to be collected beyond well abandonment
- Wireless communications across un-cased open-hole section allowed the sidetrack operations to be simplified and provide well integrity assurance by reinstating a rock-to-rock barrier
- This provided a cost effective option for well abandonment while maintaining the ability to monitor the reservoir and plug integrity
- Deploying the subsea transceiver within the cut casings below the mudline ensured compliance with NORSOK D-010 standards
- The ART system, in conjunction with our DST and well test package provided a fully integrated testing service
- The ART system delivers substantial value from interference monitoring between an abandoned pilot hole and sidetrack, without the need to drill a separate appraisal well
- It was possible to capture reservoir pressure events such as extended pressure build-ups post DST, evaluate subsurface flow barriers and monitor dynamic reservoir pressure interferences from subsequent field activities

Cost effective



24/7 monitoring



World's first



#### Contact

For further information please contact:  
[wireless@exprogroup.com](mailto:wireless@exprogroup.com)  
 or visit  
[exprogroup.com/wirelesswellsolutions](http://exprogroup.com/wirelesswellsolutions)