

Next-Level CCUS Insight and Performance with Permanent Optical Cable Monitoring

Objectives

- Deliver precise pressure and temperature measurements at two discrete depths to enable accurate calibration of third-party DAS and DTS systems.
- Implement a discontinuous optical cable system through packers and other in-well components while maintaining full optical continuity and pressure integrity.
- Manually calibrate optical instrumentation down to -20°C to ensure reliable accuracy under anticipated low-temperature operating conditions.

Our Approach

- Engineered a tailored optical monitoring solution by assessing the well design, objectives, and downhole conditions, leveraging temperature-qualified optics to ensure accurate pressure and temperature (P&T) measurement throughout injection.
- Delivered four discrete tubing and annulus P&T measurement points and deployed a pressure-testable optical routing system through packers to maintain mechanical and pressure integrity where continuous cable installation wasn't possible.
- Integrated seamlessly with the third-party data aggregator, validating end-to-end data flow, system readiness, and nFORM™ data-acquisition systems platform robustness through a full system integration test (SIT) at the Weatherford Optics Lab.
- Applied 30+ years of optical splicing expertise in a controlled, positive-pressure habitat and combined proven deployment practices with rigorous testing to deliver a reliable, field-ready monitoring system for a Southern North Sea CCUS injection well.

Value to Customer

- Enabled reliable multizone pressure and temperature measurement through full optical continuity across packers, delivering real-time, high-quality P&T data for effective injection monitoring and seamless third-party integration.
- Provided sustained post-injection surveillance via the nFORM platform in the local equipment room (LER), ensuring continuous well-performance and CO₂-storage integrity insights.
- Transformed DTS and DAS trends into absolute, actionable data, enhancing interpretation accuracy and reservoir understanding.



3D render of the ForeSite Sense tubing P/T gauge and in-situ pass-through splitter

LOCATION

Southern North Sea

WELL TYPE

Carbon capture utilization and storage (CCUS) injection well

TEMPERATURE

-20°C

PRODUCTS/SERVICES

ForeSite® Sense reservoir monitoring
nFORM data-acquisition systems platform

