

Expro Excellence

Expro provides downhole fluid sampling and onsite analysis for CCS stratigraphic wells

Carbon Capture Utilization and Storage | Well Flow Management



Objectives and background

- Expro collaborated with the customer's Carbon Capture and Storage (CCS) team to conduct Bottom Hole Sampling (BHS) and perform reservoir fluids onsite analysis
- Representative Bottom Hole Sampling (BHS) plays a critical role in CCS projects by providing accurate data for reservoir fluid analysis which is essential for understanding the reservoir's capacity and behavior. BHS also supports compliance with environmental regulations (Environmental Protection Agency - EPA) by providing the necessary data to demonstrate that the CO₂ is being stored safely and effectively. BHS helps in managing risks by detecting potential issues early, such as impurities or unexpected chemical reactions, allowing for timely intervention and risk mitigation
- Our customer was particularly interested in the Pressure Compensated Sampler (PCS) tool to collect representative reservoir fluids and Expro's capabilities to develop an onsite sample validation protocol for reservoir water samples. The customer was looking to capture sufficient volumes of representative reservoir water samples for NORM, water chemistry analysis and aquifer geochemistry studies

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- Expro mobilized a compact and mobile laboratory to the site location and deployed the PCS BHS on wireline which can function in zones with low reservoir pressures and prone to sand production issues, in multiple zones per well
- In collaboration with the customer, Expro established a protocol to validate the quality of the samples collected during BHS operations at the well site
- Pressurized samples were flashed on location to perform onsite water analysis (density, pH, resistivity, conductivity, salinity, and TDS)
- Reservoir fluid samples were collected, maintained at reservoir conditions, and validated at the well site in a single operation

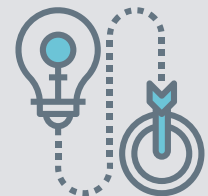
Value to the client

- Using Expro's PCS BHS tool and onsite analysis services, samples were validated on site location and early characterization of the reservoir fluids was determined
- With all operations performed and all data measured by Expro at the well site, the customer was assured of the sample quality and no additional wireline/BHS runs were needed
- Significant time and cost savings were achieved by providing the services at the well site, saving days of operations per well. Partial fluids analysis in a fixed onshore laboratory typically takes 5-10 days, but Expro was able to provide quality data in few hours after the samples were collected
- Expro delivered multiple successful projects that resulted in no lost time and no HSE events
- The samples and data collected provided critical information to baseline geochemical conditions in saline aquifers and complemented the creation of a robust Measurement Monitoring and Verification (MMV) plan for CO₂ injection and regulatory reporting to the EPA

Reduction of rig time



Innovative solution



“The customer's team commended the professional way that Expro handled the project delivery, from pre-job planning to logistics and execution, which has led to follow on work. The customer was especially pleased with the data quality and turnaround time, as the results obtained at the well site matched perfectly with the subsequent fluid analysis conducted in a fixed laboratory.”