Expro Excellence

10 years comprehensive water analysis for pioneering UK carbon capture and storage (CCS) project

Well Flow Management | Fluids

Objectives and background

- The UK has committed to Net Zero by 2050, and as part of this plan, has pledged to capture and store 20-30 $MtCO_2$ per year by 2030, rising to over 50 $MtCO_2$ per year by 2050
- Our customer is part of the Track 1 clustering sequence and has identified a large saline aquifer in the Southern North Sea, capable of storing over 450 $MtCO_2$, and possibly as much as 1 $BtCO_2$ using nearby volumes
- Although the storage potential is vast, the geology of and fluids within the aquifer are under characterized, and intensive water chemistry analysis needed to be undertaken to feed into the reservoir models and field development plan
- The customer was looking for analysis to be conducted on samples that were limited in both volume and number
- High salinity waters with low GWR make sample handling a considerable challenge

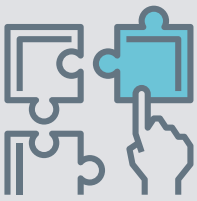
Expro Excellence

- Expro has over 15 years' experience in providing sample analysis services specifically for CCS applications, and over 25 years' experience handling high salinity, pressurized and stabilized water samples with broad analytical requirements
- Expro gave the customer advice on their sampling strategy, and through measurement of tracer concentrations were able to quantify mud contamination levels
- Our specialists undertook a comprehensive ionic composition and trace metal determination, including analysis of mud filtrate samples
- Expro measured the GWR and gas composition despite low gas volumes associated with water samples (0.2 L/L typical)
- We managed the network of lab sub-contractors for specialized isotopic and radionuclide analysis
- Expro have an extensive record of undertaking analysis of a broad range of water samples, from the most saline formation fluids to drinking water, and everything in between

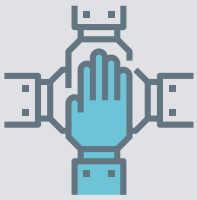
Value to the client

- Expro's detailed compositional analysis of water and gas, and any contaminants present, enabled assessment of the aquifer suitability for carbon storage and identification of challenges in handling the reservoir fluids
- Our evaluation of mud contamination levels allowed us to correct ionic compositions to uncontaminated, native reservoir brine
- Expro provided the customer with a single source solution for comprehensive analysis, managing chain of custody, in-house and third-party analysis, and sample storage
- Based on the reported compositions, our customer was able to evaluate the reservoir's potential and ultimately proceed with their project, making changes in testing and development plans based on the fluid properties identified

Integrated approach



Partnership



> The team that did the work was very customer focused, responsive and we believe highly competent.