

Expro Excellence

# Well intervention, remediation, monitoring and long-term surveillance delivered for Carbon Capture and Storage (CCS) pilot project

Carbon Capture Utilization and Storage | Well Intervention and Integrity | Fluids



## Objectives and background

- Our customer initiated a CCS pilot project in 2004, with the objective of proving the ability to inject CO<sub>2</sub> into a subsurface reservoir for permanent storage
- It was important to understand the fluid composition both in the CO<sub>2</sub> injector wells, but also in the surrounding gas producers, to monitor how the CO<sub>2</sub> plume migrated through the reservoir
- Another key part of the monitoring program was to assess the condition of the wells, to check if the CO<sub>2</sub> had contributed to increased corrosion of the tubulars and downhole components, which has implications for well integrity and workovers
- This was one of the first large scale CCS projects for dedicated CO<sub>2</sub> storage, and would deliver many lessons for future developments

## Expro Excellence

- Multiple services were delivered in various phases of the project, starting with reservoir evaluation of the exploration wells in 2004 all the way to fluid analysis in the present day
- We delivered over 8 years of continuous well head fluid sampling across 15 wells in the storage complex, including 3 CO<sub>2</sub> injector wells and 12 gas producers during the CO<sub>2</sub> injection phase
- Bottom hole samples were taken from CO<sub>2</sub> injector wells and nearby producers to infer plume migration pathways
- Detailed compositional analysis of well head and bottom hole fluid samples were conducted in our accredited laboratories
- Mechanical slickline intervention was used to run and set multiple tools over the duration of the campaign
- A variety of cased hole services, including callipers and multi barrier corrosion logging tools, were run to assess the condition of the tubulars and annuli over time, to infer the impact of corrosion as a result of injecting CO<sub>2</sub>
- Tubing punches were run to gain access to previously isolated zones

## Value to the client

- Detailed laboratory analysis of well head and bottom hole fluid samples enhanced the understanding of CO<sub>2</sub> plume migration, formation connectivity and rock geomechanics
- Expro were able to deliver multiple services across well intervention, cased hole, fluid sampling and analysis, to increase to overall efficiency of the project
- Expertise in well intervention allowed all work scopes to be conducted with no lost time and with no HSE events
- This pioneering project has delivered numerous lessons learned, that can be considered for future CCS development globally

### Lower carbon footprint



### Integrated approach

