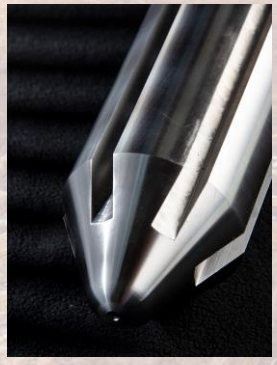
Downhole Technology for CCUS

Supporting the Energy Transition

Transferring technology and expertise from the oil and gas industry into wider energy sectors and carbon reduction projects is helping to enable the development of a more diversified and balanced global energy portfolio. To support this drive, DTI is actively engaging with carbon capture, utilisation and storage (CCUS), hydrogen and gas storage and geothermal operators to look at suitable opportunities where our proven downhole technology solutions can be used to add value and pace to their projects.

Our downhole products have built an enviable track record for quality and reliability in the oil and gas industry, having been qualified and deployed in a wide range of harsh pressure, temperature and corrosive environments. These slickline, electric line and coiled tubing tools, along with our broad range of downhole safety valves and plugging and isolation solutions, are highly transferable to applications in wider energy sectors, with little to no modification. To complement these products, our skilled in-house design and manufacturing team are also able to create new or bespoke solutions tailored to the specific challenges of each well.

One example of a valuable transferable solution is our Ultra-High Expansion (UHX) technology, which can be employed during the repurposing of oil and gas extraction wells into gas, carbon capture or hydrogen storage injection wells. By permanently plugging and isolating the lowest part of an existing candidate well, a workover can be implemented to replace the oil and gas well completion and ensure suitability for the new injection application.



Operator Challenges

The challenges facing operators for this type of recompletion can include sourcing a reliable permanent plugging solution for a comparatively large lower wellbore, which is able to be navigated downhole through smaller upper restrictions. If an expandable plug cannot be sourced to suit the individual well architecture then other solutions must be found.

One alternative is to kill the well using heavy fluid, which then presents the problem of effective removal and cleanout following the recompletion, with the added burden of a higher equipment and personnel resource and the related carbon footprint for these operations. Another alternative is to use cement as a lower barrier, however this is also a time and resource rich operation with a higher carbon footprint compared to a single slickline run to set an expandable plug.

UHX Solution

Our UHX Packoff can be deployed and set in the lower liner to provide a narrower internal diameter and a suitable profile in which to set a permanent plug. This arrangement remains in place after the new completion is installed, providing a secure, pressure tight, lower well barrier, preventing ingress of residual hydrocarbons and other reservoir fluids.

Our UHX technology is unique in that it offers an industry-leading 300% expansion rate. This level of expansion, combined with the ability to deliver a higher-pressure barrier for its size, compared to other offerings, is the ideal solution for such challenges. Find out more about our UHX range here: UHX Brochure

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