

THE ACE TOOL (ARDYNE CASING EXPANDER)

Two applications covering reduction of costs and production improvement



Utilising the field proven DHPT - DownHole Power Tool - platform to provide down hole power to drive a High-Force Casing Expansion Head which performs local circumferential expansion of the inside diameter of wellbore casing. The local casing expansion can be used to conduct two different functions (Fluids Separation & Annular Cement repair) across three different Well Intervention types (P&A, Slot Recovery & Resumption of Production where wells are shut in due to Sustained Annulus Casing Pressure).

Setup for Cement / Well Fluid / Oil Based Fluid Segregation

This expansion can be used to expand an inner casing to contact the inside of an outer casing to create an interference fit. This procedure can be used to segregate different fluids such as trapping oil based fluids pre-abandonment as well as being a base for annular cement to prevent the higher density cement from u-tubing into the annulus below.

ACE Tool can be deployed to expand the 9 5/8" in a controlled manor out to the ID of the 13 3/8" casing and provide a base for planned annular cement plug.

Successful cement squeeze providing shallow single barrier / environmental cap



9 5/8" Casing on top of 13 3/8" casing

- Eliminates the risk of cement migrating down the open Annuli when performing Perforate Wash Cement and Cement Plug placement
- Greatly improves cement plug quality & integrity



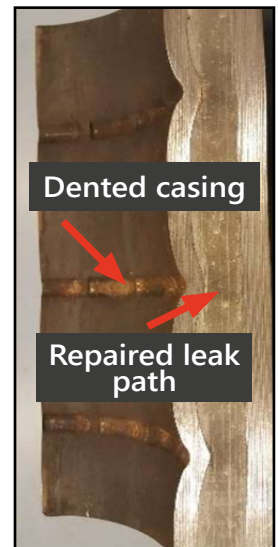
ACE Tool Assembly

Setup for Cement Repair

Additionally the expansion can be used for a number of highly beneficial wellbore interventions. The expansion can be used where a well has SACP (Sustained Annulus Casing Pressure) issues caused by leakage through the annular cement.

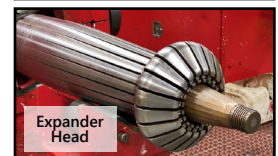
Controlled plastic expansion of the casing ID:

- Closes gaps (micro annuli, channels, cracks, fissures)
- Increases local CBL bond index
- Reduces porosity (increasing density) through the compression process
- Allows unreacted cement particles to be exposed to free pore water which rehydrates and resets the cement structure (regains hardness and stiffness)



Dented casing

Repaired leak path



Expander Head



APPLICATIONS ACROSS THE WELL LIFE CYCLE

Two applications to cover multiple well scenarios



Plug & Abandonment

Annular Cement Repair

Annular Fluid Separation

Drilling
Fluids

Cement
Migration

Cement Repair - Repair of annular cement to allow the setting of internal cement plugs for permanent well abandonment.

Drilling Fluids - Cost and Carbon related rig time savings for leaving oil-based fluids in place as well as reduction in the costs for disposal of the fluids.

Slot Recovery

Annular Cement Repair

Barrier
Improvement

Cement Repair - Repair of annular cement to allow the setting of internal cement plugs for permanent well abandonment.

Barrier Improvement - Improvement of bonding index of formation barriers such as shale to obtain a successful pressure test and improve bonding.

Resumption of Production

Annular Cement Repair

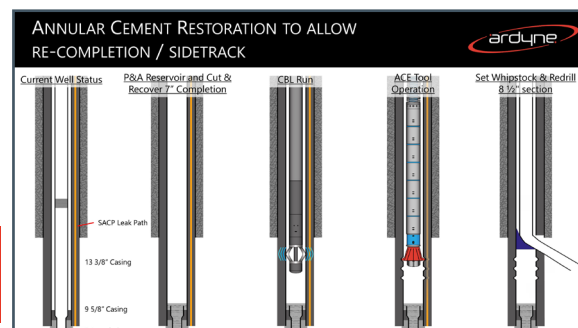


Cement Repair - Resumption of production on wells which are shut in due to SACP (Sustained Annulus Casing Pressure) issues with the associated increased production revenue.



ACE Tool Data Sheet
available on request

*Click to View
ACE Tool Well
Scenario Diagrams*



*Click to View
SACP Case Study*

