Revolutionising the Down Hole Safety Valve

Restoring Shut-in Wells

Sarah De Boer

Project Manager – Wells Solution Centre
Wells Vision

Reducing costs and improving efficiency

Well Construction Cost Reduction
Streamlined Design

50%

Flawless Delivery
Automated Well Delivery

Well Reliability for Design Life
Maximise Recovery

100%

Abandonment Cost Reduction
Optimal Abandonment

35%
Value Prize

- Around 1 in 10 wells shut-in during 2017 in the UKCS.
- If lost production from shut in wells is 10%, by restoring 10% of these wells, we can raise UKCS production by around 16,000boe/d – at $70bbl, this is worth $1.1MM per day.
Industry Feedback

Causes of well shut-ins based on amount of production lost:

1. Reservoir Pressure/ Artificial Lift
2. Well Integrity - Annulus
3. Water Production - Liquid Loading/WaterCut
4. Well Integrity - Tree Valves
5. Well Integrity - DHSV
6. High H2S
7. Hydrates
8. Subsea Control Failure
9. Tubing Integrity
10. Pipeline Integrity
Industry Feedback

Causes of well shut-ins based on number of wells

1. Well Integrity – Annulus
2. Well Integrity - DHSV
3. Water Production – Liquid Loading/WaterCut
4. Artificial Lift/Reservoir Pressure
5. Scale
6. Well Integrity – Tree Valves
7. Sand
8. Well Integrity - Wellhead
9. Formation Damage
10. Well Depositions
Workshop Methodology

- Root Cause Analysis of DHSV Failure
- Research of Technologies to Repair/Replace
- Discussion and Prioritisation
- Plan for Technology Development
- Open Innovation/Directed Projects
Workshop Breakdown

- Root cause analysis – using the expertise in the room
- Identify new technologies that could apply
- Vote on key technologies
Key Fault Findings

Common Faults

- Communicating with the tool
- Operating the valve mechanism
- Damage/deposits in flapper/seal
- Fixing failed hydraulic system challenging

Technology Areas

Hydraulic Communication Alternative
- Electric Valve (Comms and Operation)
- Alternative to Flapper Valve (e.g. Iris)
- Nano Cleaners
- Self Cleaning
- Control Line Keyhole Surgery
Current Status

Direct Output from Workshop Attendees:
• 1 Directed Project Approved
• 3 Opportunities Submitted

3rd Call for Ideas – Q3 2018
Open Innovation Strategy in Progress.