
EXPRO

CoilHose

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CoilHose | Introduction

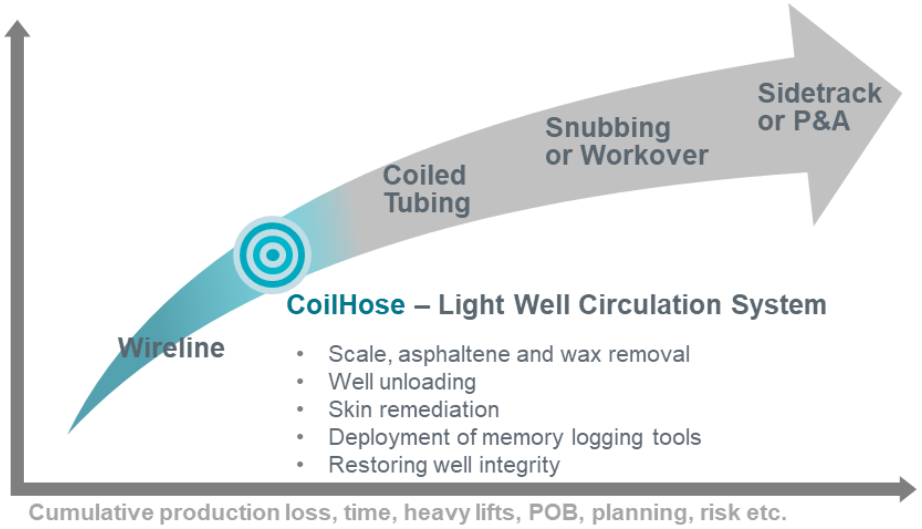
New Service Line

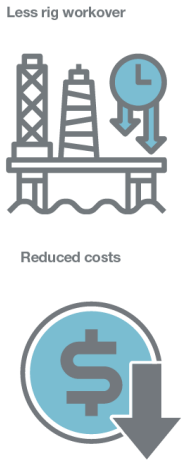
Integrating Wireline and Coiled Tubing

Small OD Flexible Hose

No Injector or Goose Neck

Gravity Feed System





Benefits:

- Light, compact and efficient footprint
- Mobile and flexible set-up
- Reduces overall cost of intervention
- Rapid deployment capability
- Option for multiple services (slickline, e-line, CoilHose)

CoilHose | Mk.6

Same inner core and outer cover as current hoses

Two layers of high tensile steel

Intermediate cover

Tension member – braided syntetic fiber

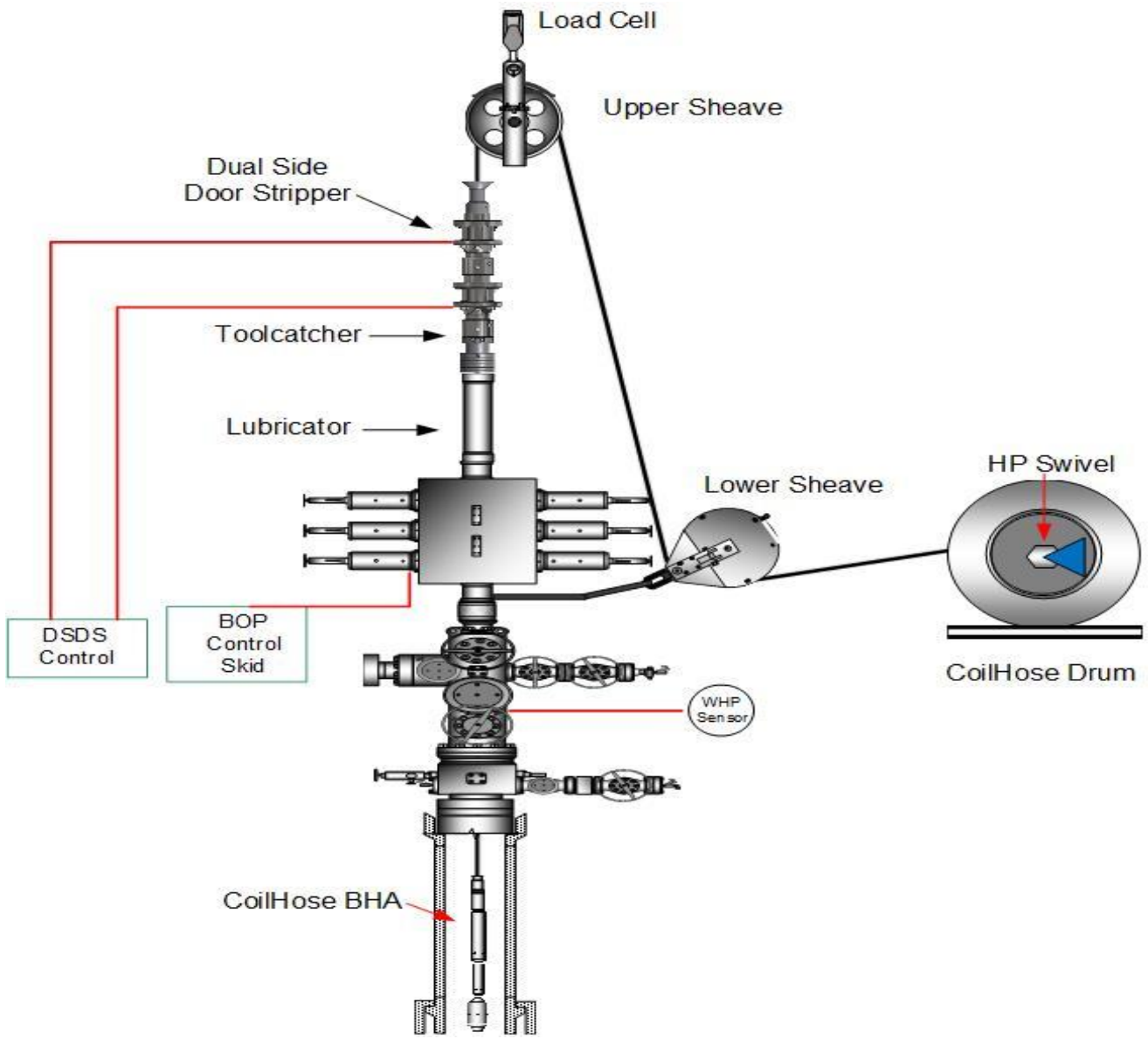
Specifications	Mk.6 CoilHose
Outer Diameter	23.5 mm
Inner Diameter	10 mm
Max Pull Limit on EC	15 500 lbf
Burst Pressure Limit	31 250 psi
Collapse Pressure	3000 psi
Working Pressure	12 500 psi
Temperature Rating	-40ºC to 150ºC

CoilHose | RigUp

Dry Wellheads

- **Standard WL PCE Equipment**
  - Customized PCH
  - Customized BOP inserts
- **CoilHose Unit**
  - Same footprint as WL
- **Circulation Package**
  - Fluid
  - N2

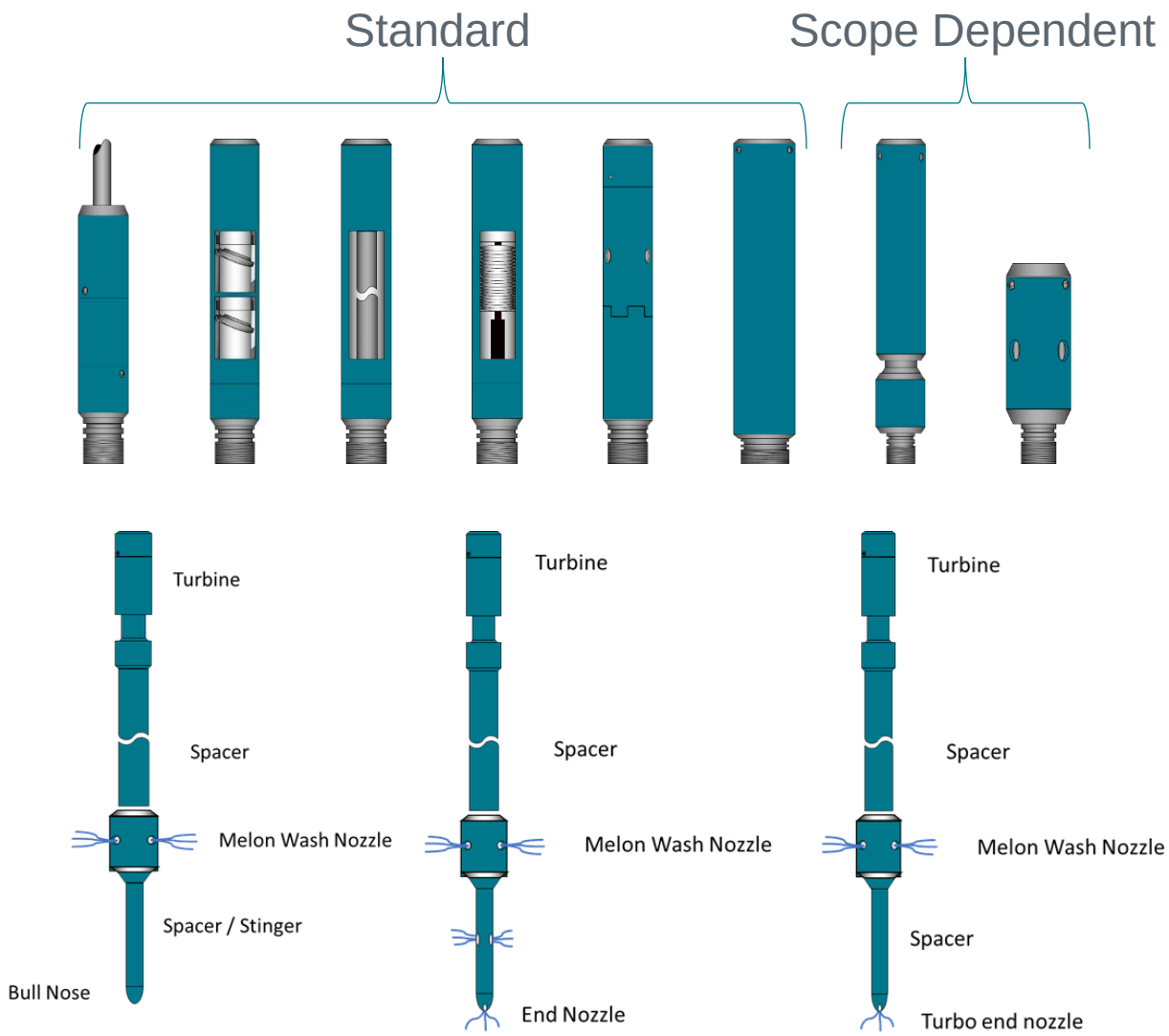
- **Crew Requirements pr. shift**
  - 1 x CoilHose Supervisor
  - 2-3 x CoilHose Personnel



CoilHose | Bottom Hole Assembly

1-11/16” and 2-1/8” OD tools as standard

- CoilHose End Connector
- Dual Flapper Check Valve
- Swivel
- Shock Absorber
- Shear Release Disconnect
- Weight Bars
- Turbine
- Various Nozzles
- Memory tool (Camera, caliper, CCL, etc.)
- Roller Bogies for deviated wells
- PACS Pressure activated circulation sub



Case Study #1 – Problem

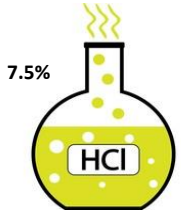
Re-activate DHSV

- **Inflowtest failure**
- **Over 1.7 m3 scale**
  - Calcium Carbonate
  - Based on Caliper report
- **14 days of WL broaching**
  - Reached 42 meter
- **No option to dump acid**
  - Liqiud level below DHSV

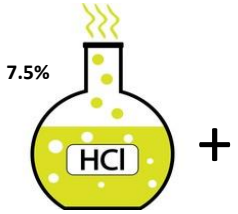
Solutions

Broach & Brush

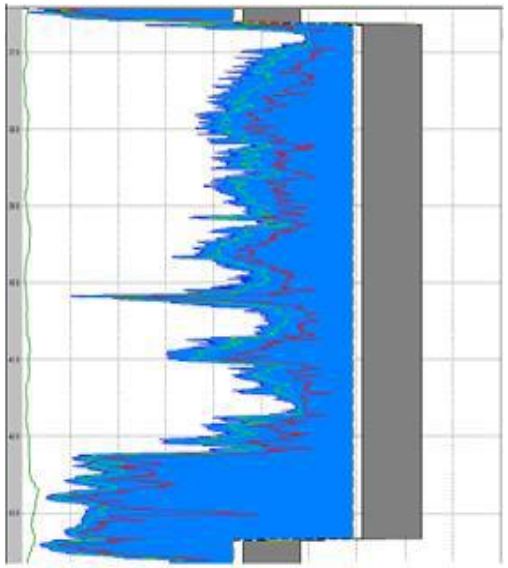
Dump Acid



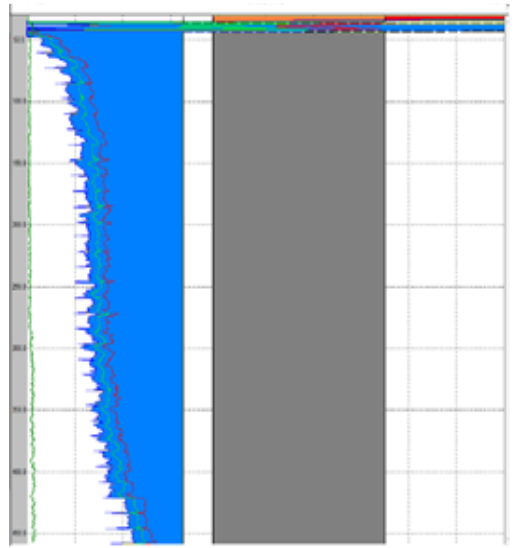
CoilHose & Acid



Upper Section



Lower Section

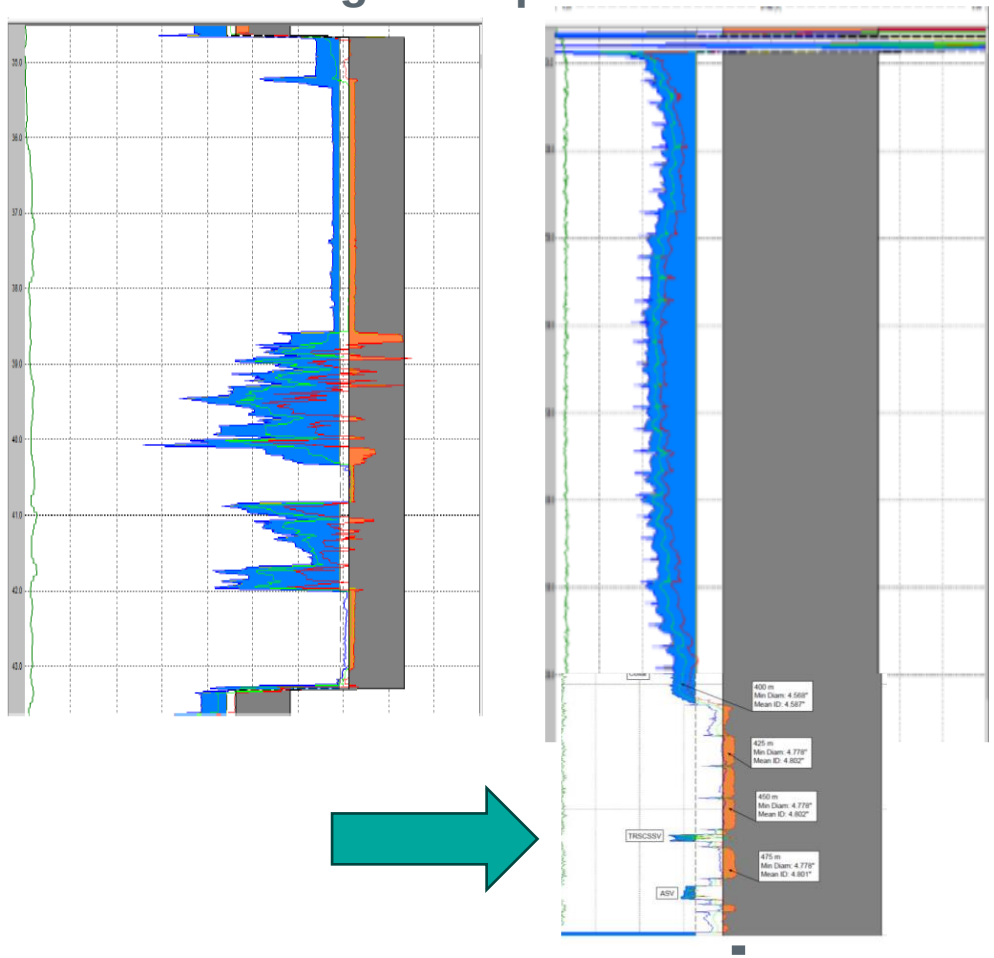


Case Study #1 – Result

- **3 days operation**
- **3 runs**
  - Turbo Stinger Nozzle
  - DHSV Wash Nozzle
  - Multifinger Caliper
- **Good test on DHSV**

- **1000 bbl/day enhanced oil production**

Multifinger Caliper on CoilHose



Case Study #2 – Worlds first CoilHose N2 lift from RLWI

Objectives and background

Equinor had a newly completed well that had been left with a full column of brine during the completion phase. Simulations showed that N2 gas lift was necessary to start production

The alternative to CoilHose™ would have been Coil Tubing which is logistically challenging, High POB and very much weather dependent

Equinor had previously worked with Expro and have a good understanding of our CoilHose™ technology and our ability to perform open water intervention from RLWI with a limited footprint and less POB

Case Study #2 – Worlds first CoilHose N2 lift from RLWI

CoilHose™ was positioned at a depth of 2,150 m MD while the well was unloaded over a period of 7hrs

Expro deployed a ‘hybrid’ CoilHose™ package to work in conjunction with the customers preferred wireline vendor resulting in a fully integrated service delivery platform

The projected was completed safely and ahead of planned timings

The customer gained a new high producing subsea oil well after only 9 days vessel time from the point of mobilization to demobilization

The project duration was significantly improved by utilizing the CoilHose™ solution compared to traditional Coil Tubing

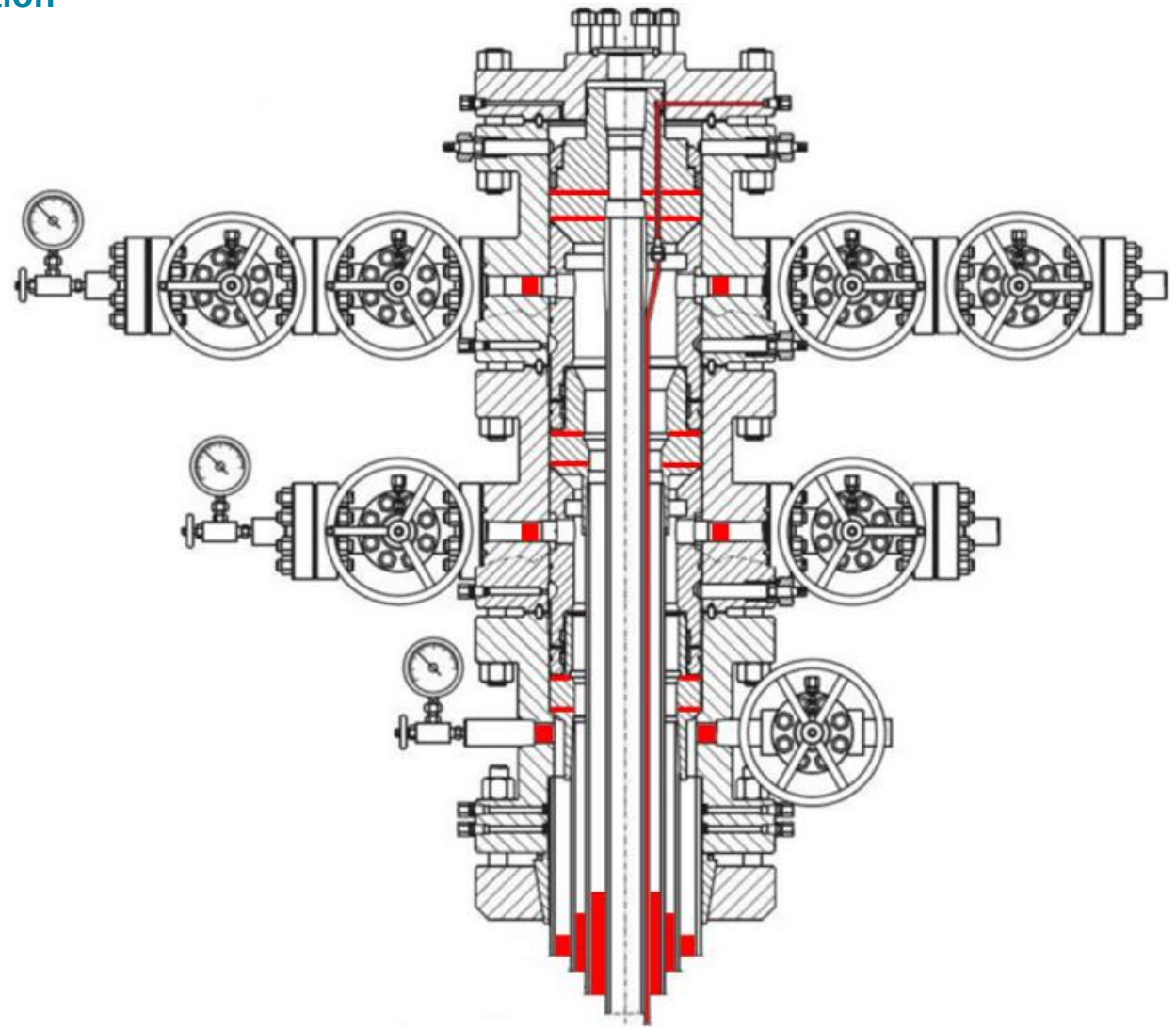
With this recent success, we see that CoilHose™ is a useful tool for us to handle depleted reservoirs.”

Erik Havnen Ullsfoss
Senior engineer, Equinor RLWI

Octopoda - Services

Octopoda – Services

Annulus Intervention



A - Annulus

B - Annulus

C - Annulus

Octopoda™ Annulus Intervention

Octopoda™ - Annulus Intervention System enables evaluation, circulation and injection of fluids in a pressurised annuli

Safe, OPEX and ABEX efficient remediation of annulus integrity issues

Deployment

Enhancement

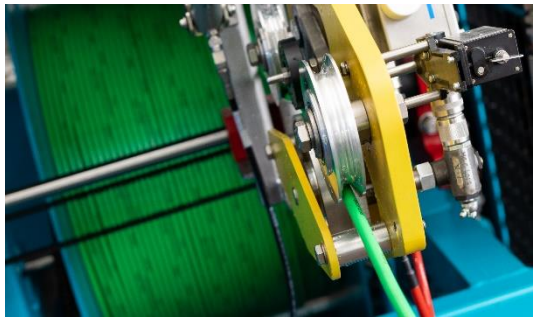
Octopoda™ - Annulus Intervention system enables access to a live annulus via the wellhead to allow the remediation of annular issues without the expense or environmental footprint of a heavy workover rig.

Applications:

- Removal of sustained casing pressure
- Spotting of resin for casing integrity remediation
- Corrosive fluid displacement
- Environmental and groundwater protection
- Preparation for P&A

Features and Benefits:

- Cost effective well recovery by restoring well integrity
- Efficient footprint and personnel requirements
- Rapid mobilisation
- Reduces the requirement for a workover rig or heavy equipment



Well Integrity | Operational Efficiency | Digitalization

Octopoda™ Annulus Intervention

AI Hose and Fluid pumping table

Large AI Hose	
OD	11.5 mm
ID	6.3 mm
Working pressure	600 Bar
Temprature rating	-30 to 100 C°

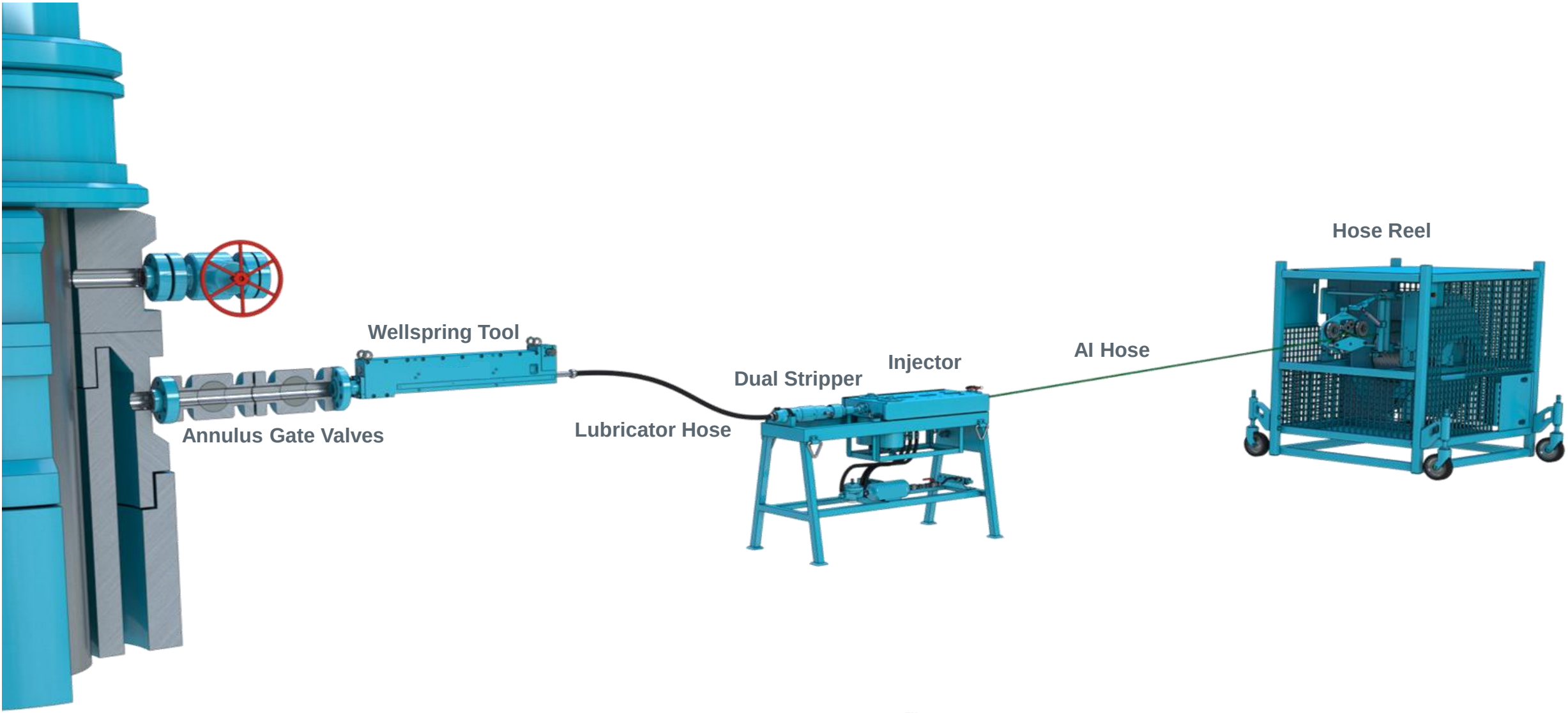
Small AI Hose	
OD	6.9 mm
ID	3.4 mm
Working pressure	690 Bar
Temprature rating	-30 to 100 C°

Application \ Product	Brine, 1.0 to 1.8 SG	Heavy Brine, 1.6 to 2.25 SG	Epoxy resin	Polymer resin	Barite resin	Dissolvable gel
Fluid swaps	●					
Instatement of fluid barrier	●	●				
Integrity / leak remediation			●	●	●	
Temporary barrier						●
P&A barrier			●	●		

● Electromagnetic cement is currently being evaluated

Octopoda™ Annulus Intervention

Equipment layout



Case Study #1 – Sustained Annulus Pressure for petronas in Malaysia

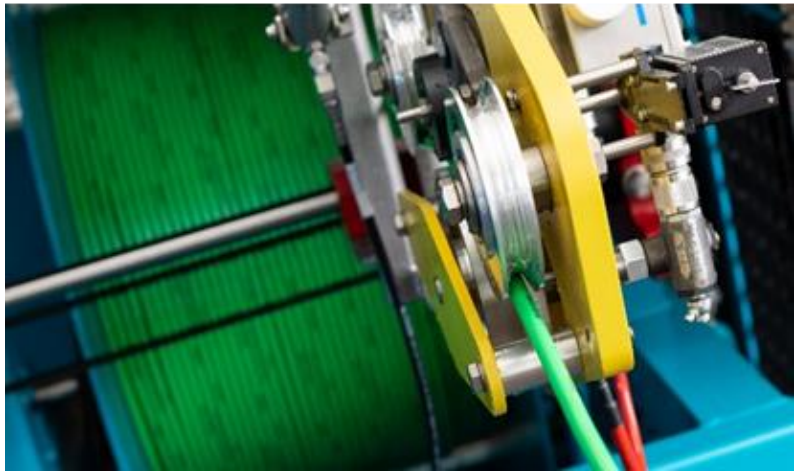
Petronas Malaysia had a well experiencing Sustained Annulus Pressure (SAP) in the B annulus above the 300 psi (21 bar) limit of operating envelope acceptance

A traditional “lubricate and bleed” operation was estimated to take 18 weeks to complete

Well workover was not an option due to high cost

The fluid displacement was completed in 9 days, with 65 bbls (10,300 litres) of heavy brine pumped via a 6.9 mm OD AI hose positioned at 75 feet (23 meters)

The Sustained Annulus Pressure was reduced to 150 psi (10.3 bar), this enabled the well to be produced without the requirement to have a Management of Change process in place



Case Study #1 – Sustained Annulus Pressure for petronas in Malaysia

This was a cost-effective alternative to a full well workover and competitor solutions

The customer was able to regain annulus integrity within acceptable limits by swapping out the annulus contents with a heavy (14.8 PPG / 1.8 SG) brine

This project was completed, from mobilization to de-mobilization within 3 weeks versus the "Lube and Bleed" alternative which would have taken 18 weeks to complete

The lifetime of the casing and annulus cement was extended by the elimination of pressure cycling experienced during "Lube and Bleed" operations

The Expro Octopoda™ solution utilized minimal personnel and equipment footprint and was powered by the Platform air suppl

We, the Petronas Well Integrity team finally managed to rectify the sustained annulus pressure issue for this well after a series of past trials with other technologies and methods."

Customer quote

Presentation end

Thank you