



**A collaborative approach
to bring new technology
to the market with Net
Zero Technology Centre
and Repsol Sinopec
Resources UK Limited**



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Wellvene



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Well Integrity: UKCS Overview

The industry challenge

1778

UKCS Platform
and NUI wells in
operation currently

389

Reported well integrity
issues in 2021

231

Wells shut in or plugged due
to well integrity issues (SSSV
and tree valves equating to 60%)

£350k

Average cost of a platform
SSSV repair in 2021 with wells
being returned to production

36

SSSV repairs in 2021
adding total production
of 3.1 mmboe/year

34

Wellhead repairs in 2021
adding total production of
4.0 mmboe/year

80% of fields are **30%** below their maintenance and intervention rate

SOURCE: North Sea Transition Authority – Wells Insight Report 2021

Well Integrity: UKCS Overview

Operator requirements and challenges

What does this mean to the operator?



HSE obligation to complete annual WHM and SSSV testing



Historic data tells us we can expect SSSV, Wellhead and Xmas Tree Valve failures



Expect to allocate a slot in the platform schedule for remediating failed valves



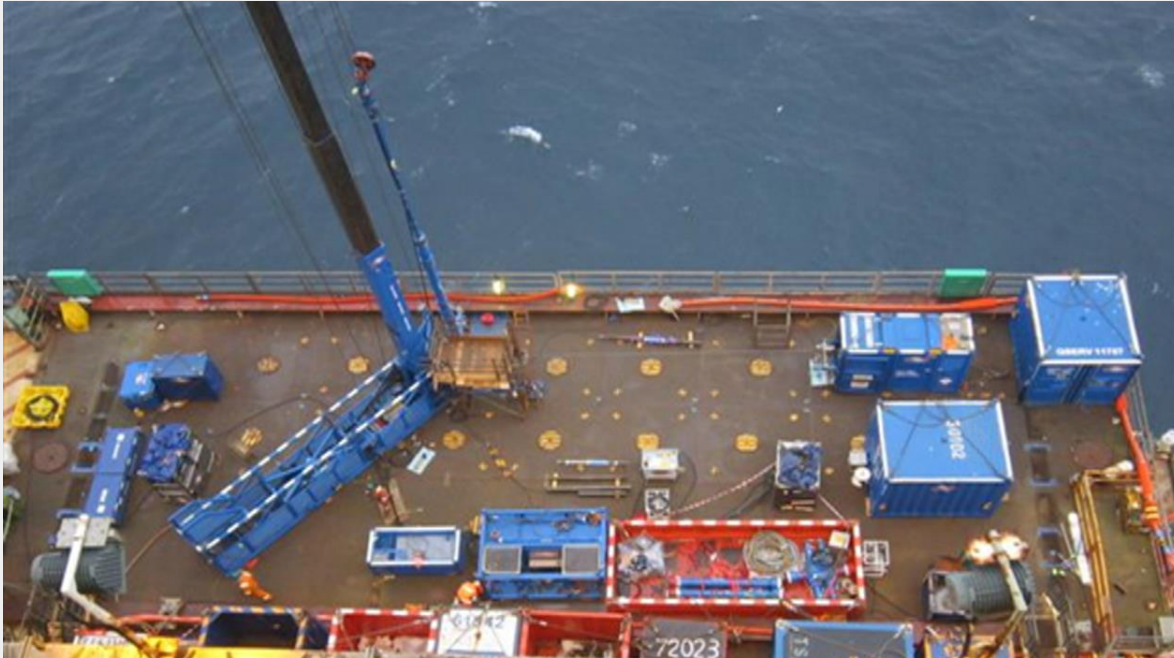
Challenges with securing space on platform schedule when value-adding wellwork is a strong contender



Mobilise full slickline package and personnel to complete remedial worksopes

Well Integrity: Conventional Methods

Traditional approach to complete repairs



- Significant volume of equipment, including a mast and wireline unit
- Additional space on supply vessel and platform working area
- Approximately 3 days to spot, prepare and rig up on first well
- 12 – 24 hrs to move equipment between wells (full rig down, re-spot and rig up)
- 3 x slickline crew members per shift
- Bridge Plug, Xmas Tree and Wellhead specialist personnel

Well Integrity: Delay or Repair

Operator requirements
and challenges

With the current option, the result for
planning and execution may be...



Delayed
repairs



Raise deviations
and dispensations



Repair only priority
wells (Safety
Critical Valves)



Include integrity repairs within
a rate adding campaign,
leading to mixed operations,
equipment and personnel

Well Integrity: Our challenge within UKCS

Wellvene's goal



Change Operator mindset in relation to how they plan maintenance campaigns



Provide a more efficient way to install shallow Bridge Plug(s) for Tree Valve repairs



Provide a more efficient way to complete TRSSSV and WRSSSV remedial workscopes



Reduce Risk, Time, Cost and POB



Save space in the platform schedule for focused rate-adding well work without the distraction of integrity workscopes

Well Integrity: Addressing the Challenge

To achieve our goal

Working for us

- Fully understand the challenge and industry need
- Great idea for a new system
- Experienced and skilled team
- Facilities to test and qualify equipment
- Trusted industry partners

Working against us

Our youth

Well Integrity: Addressing the Challenge

Innovation through collaboration



Entered our technology
in the 2018 cycle of the
Net Zero Technology
Centre 'Call for Ideas'



Won funding, allowing
Wellvene a faster route
to bring the technology
to market



Supported by Repsol
Sinopec Resources UK
Limited for the first
field trial

Well Integrity: Addressing the Challenge

The WellHOP™

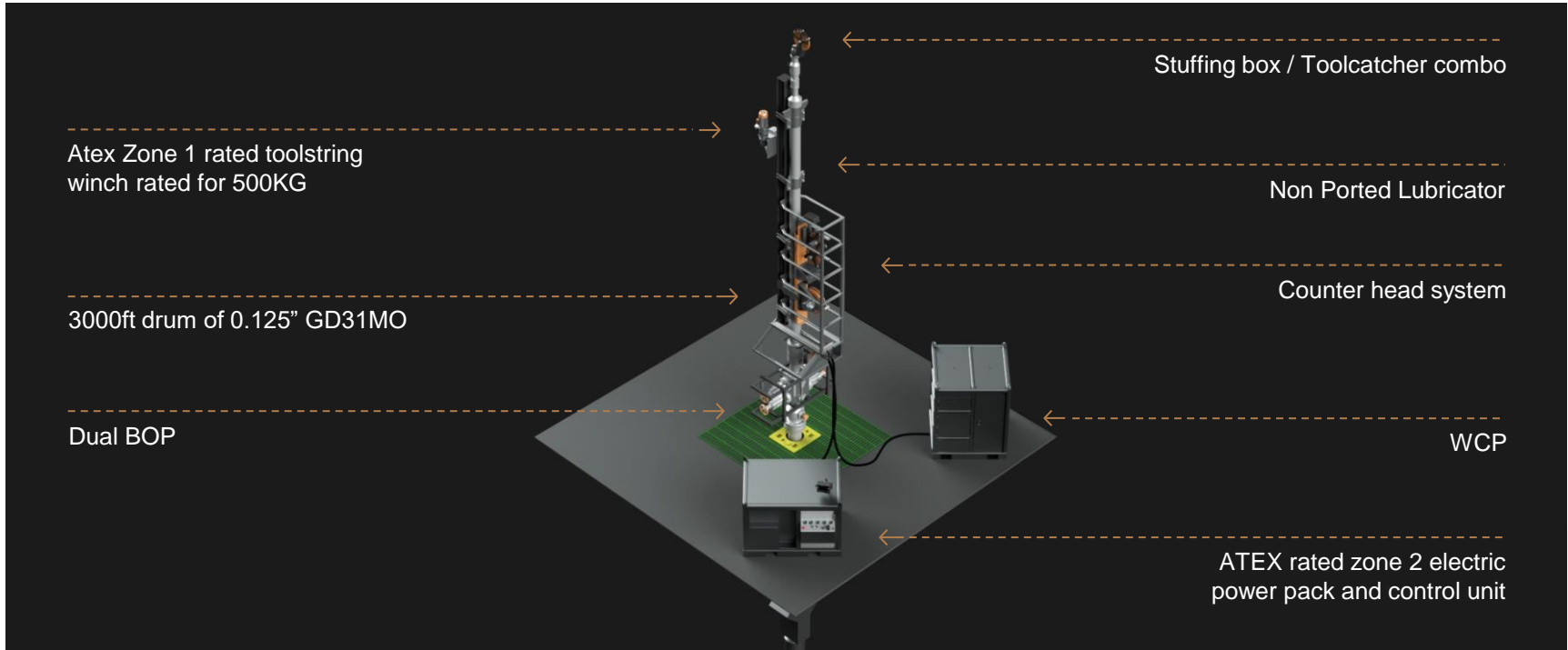


Develop a new shallow application slickline system

- Efficient solution for DHSV remedial work and installing plugs for xmas tree/wellhead repairs
- Eliminates the need for a mast and separate wireline winch
- Offers ability to efficiently move between wells
- Simplifies PCE rig up without compromising well control requirements

Well Integrity: Innovative Technology

Overview of WellHOP™ System



Well Integrity: Innovative Technology

The WellHOP™ package

↓
WellHOP™
mobilised with wire
pre-fed through
counter head and
stuffing box

↓
BOP's pre-
assembled
to riser

↓
Goal to mobilise
complete package
in only 3
containers / lifts

↓
Smaller footprint
on vessel and
platform

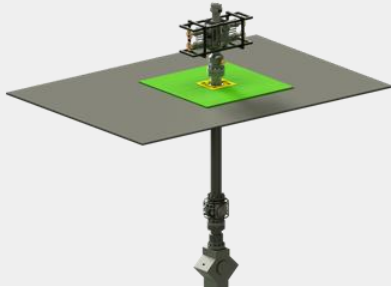


Well Integrity: Innovative Technology

The WellHOP™

System rig up

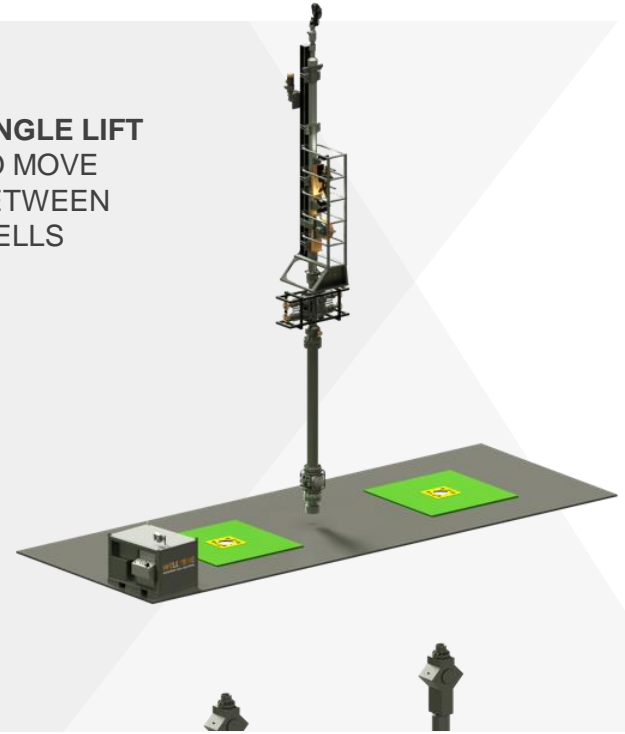
LIFT ONE
RIG UP
TO BOP



LIFT TWO
FULLY
RIGGED UP
ON WELL



SINGLE LIFT
TO MOVE
BETWEEN
WELLS



Well Integrity: Innovative Technology

The WellHOP™ vs
conventional wireline

12hrs

SPOT, PREPARE AND RIG UP
12hrs WellHOP™ vs 36-48hrs
Conventional Slickline

40min

WELL TRANSFER
40 minutes WellHOP™
vs 12hrs Conventional
Slickline

25%

25% Reduction in Footprint
compared with Conventional
Slickline Package

CO₂

Reduced Lifts and
Operational Time =
Reduced CO₂

Addressing Well Integrity: Time for Change

Benefits of WellHOP™

- Achieves more xmas tree and DHSV repairs within a single campaign compared with conventional slickline
- Significantly reduces rig up time - two lifts from basket to fully rigged up on well
- Smaller footprint compared with conventional rig ups
- Only two POB required to operate system
- No slickline wire across open deck area
- Reduced connections for reduced leak paths
- Option for simops - Run WellHOP™ and conventional slickline

WellHOP™ frees up the platform schedule for value-adding well work, while reducing operational risk, time, cost and POB.



Addressing Well Integrity: Time for Change

Thank you!

Funding



Net Zero Technology
Centre

Field Trial



Repsol Sinopec
Resources UK Ltd

Design and Supply
of System



BenchMark
Wireline Products

Pressure Control
Equipment



Hunting Energy
Services International



Innovation through Collaboration

Learn more about the WellHOP™

UK first use of new Shallow Application Slickline System.

Minimising the offshore footprint and achieving well-to-well transfer in only 40 minutes.

17 November | 9.50am



Kevin Mather
Wellvene



Neil Emslie
Harbour Energy

