

**Bitesize Decom Event**

**Helix Decommissioning Support  
'New Approach to P&A'**

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*Navigating the present, focusing on the future.*

# Agenda



## 1. P & A Overview

- Traditional MODU approach
- Alternate Approach

## 2. Challenges

## 3. New Technology

- ROAM

## 4. Solutions

## 5. Helix Decommissioning Support



*Navigating the present, focusing on the future.*

# P&A Overview



## Traditional Approach

- Use of MODU & Jack Ups
- Use of 21" Marine Riser
- BOP Stack Use
- One size fits All from simple to complex well abandonments



# P&A Overview



## Alternate Approach

- Use Of the ROAM
- On a Heavy Well Intervention Vessel
- 8.5/8" HP Riser rather than the 21" Marine Riser
- IRS Stack rather than BOP Use
  - EDP/LRP
  - TRT
- Abandonment application is tailored to well type and reservoir need (no requirement for over loading equipment spread)

# Challenges



1. Environmental Containment
2. ESD
3. Deck handling
4. Regulatory approval

# New Technology - ROAM



## Functionality

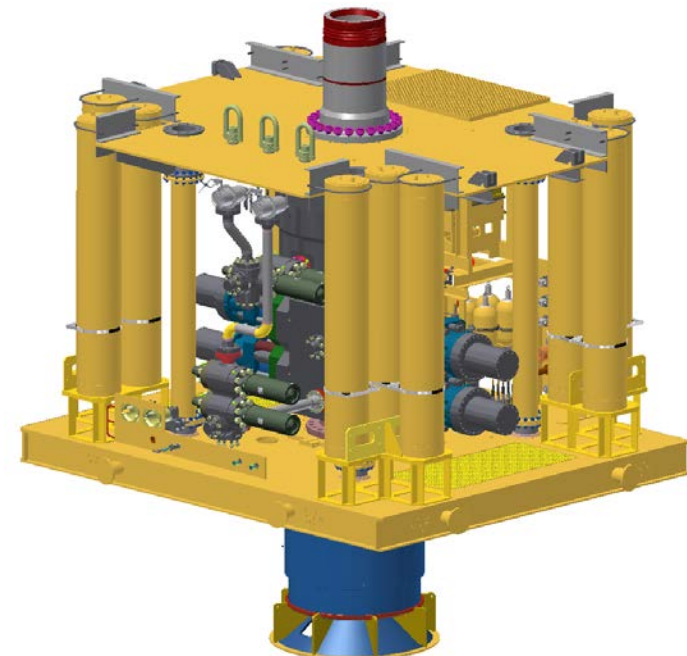
- Normal Operations = Environmental Containment
  - Annular BOP and circulation lines
- Pressure Test & In-flow test
- Emergency = Well Isolation
  - Dual Shear-Seal Rams
  - EQD functions

## Lower overall cost of P&A

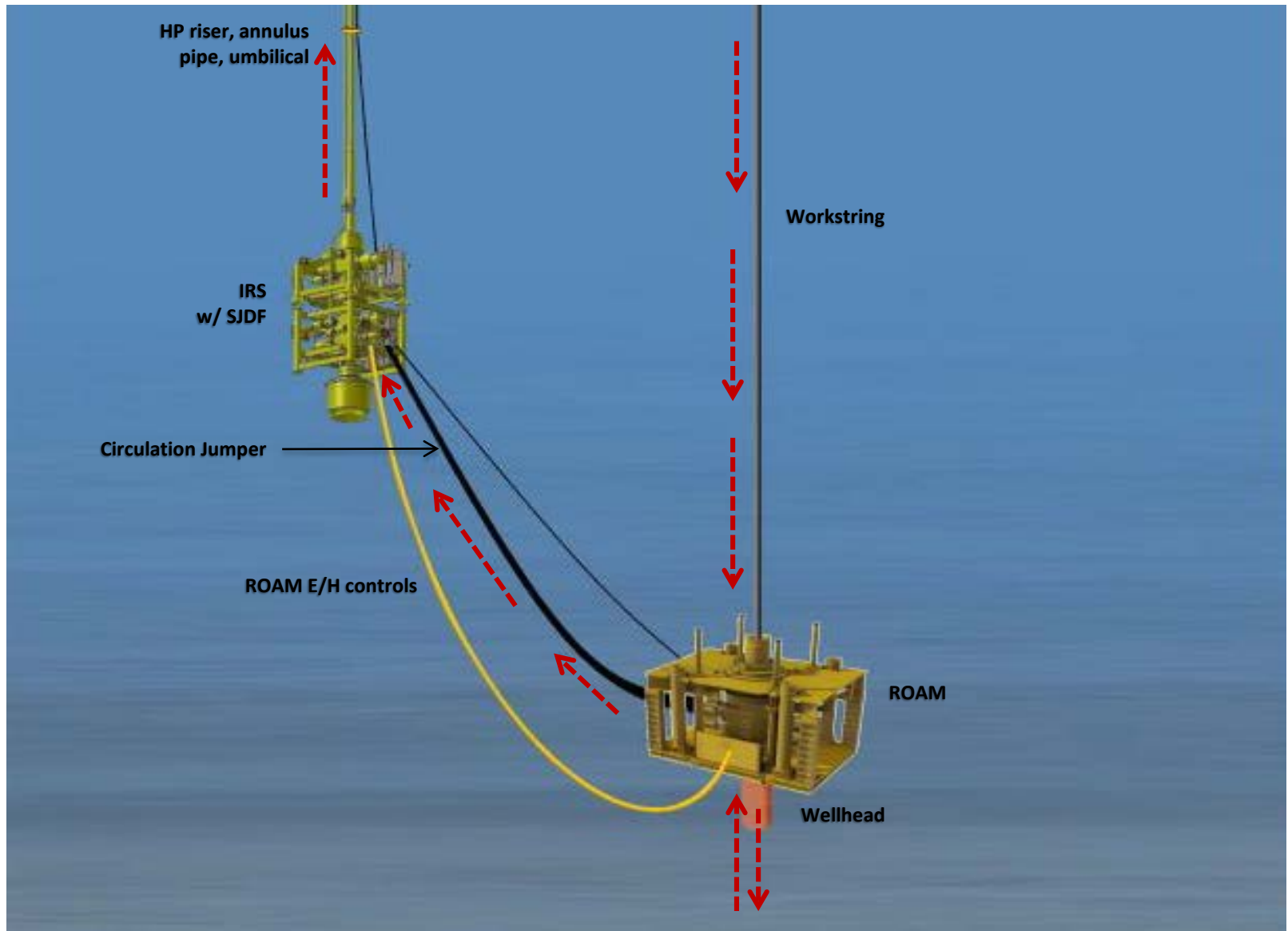
- De-risk P&A campaign by using Cost effective HWIV
  - Enable logging behind casing by pulling Upper Completion open water
  - Full Well P&A capabilities by addressing remediation scenario
- Minimize use of Drilling Rig for P&A

## Layout

- 18-3/4" Re-entry mandrel
- 18-3/4" 10,000psi Annular BOP
- 18-3/4" 10,000psi Double BOP
  - Shear & Seal rams
- 18-3/4" H4 connector
- Flow spools with 3" stabs
- 2" circulation lines
- Emergency Disconnect
- OneSubsea Subsea Control Module



# New Technology - ROAM



# P&A operational steps with ROAM



Well Preparation

## Phase 1 Reservoir (lower) barriers

Bullhead tubing  
Mechanical Plugs

cement plugs  
on CT/DP

MODU c/w CWOR

Through Bore

LWIV

Diving  
Well prep (Barriers, injectivity test, drift run)  
Bull heading/ circulation  
Mechanical plugs  
Through tubing cement  
VXT recovery

HWIV + IRS

As per LWI  
+ CT mechanical access  
+ CT cement placement

## Phase 2 Intermediate (upper) barriers

Release &  
Recovery  
Tubing

Permanent plugs  
Across/ recover  
casings

MODU c/w BOP

Full Bore

- Full bore access
- Deployed in parallel over the side
- Unset and pull TH open water
- Enabler for Intermediate Abandonment
- Well Isolation capability



Q7000 + ROAM

## Phase 3 WH removal

Surface Plug

Conductor removal  
Seabed Clearance

LWIV

Open water Services with specialized tooling for cutting  
+ Infrastructure Decommissioning  
+ Seabed Clearance





## 1. Environmental Containment

1. Fully flushed well envelop to minimum of 30ppm (NS) or client specified cleanness levels. Bottom (wellhead monitoring as well as at surface).

## 2. ESD

1. 2 X Shear Seal Ram (18.3/4" BOP Rams with capacity to cut casing).

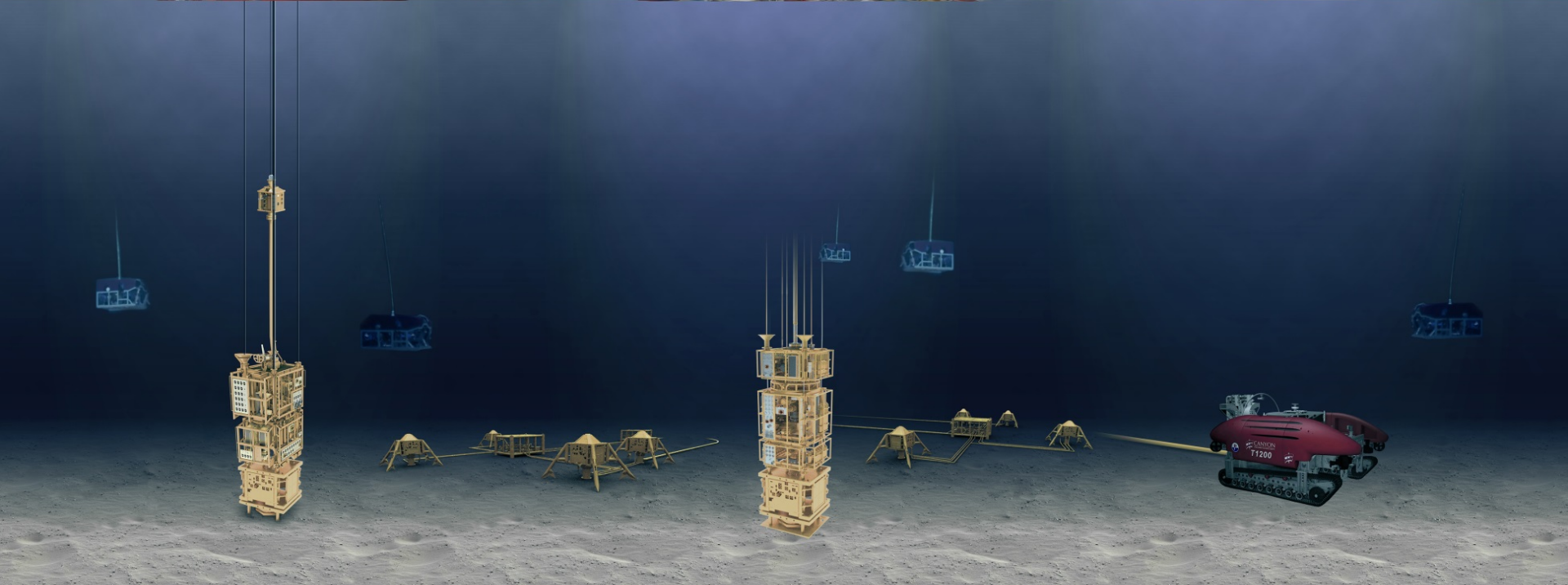
## 3. Deck handling

1. Hanger & pipe handling system on vessel as well as NORM including bonded laydown areas

## 4. Regulatory approval

1. Submission made to BSEE (GoM)
2. Submission to HSE as part of Q7000 safety case in Q1 2018

# Helix Decommissioning Support





# Thank you





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