Rigless – Cutting the Cost of Well Abandonments

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Rigless – Cutting the Cost of Well Abandonment

- Objective
- What Does “Rigless” Mean
- Basic Requirements
- Case Study
- Comparisons
- Conclusions
Objective

• Permanently Abandon the well safely (in compliance with O&GUK guidelines)
What Does “Rigless” Mean
“Rigless”?

Do you need to pay for this?
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“Rigless”?

When you can just use this?
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- Only mobilise what you need
- Where possible use existing structure/deck
- Use existing well tubulars for conveying barriers (cement)
- Create a tailored spread suitable for platform and job
- Tubular removal, use Jacks, cut into sections to meet crane capacity
Basic Requirements
Suitable wells
400+ sq m of available deck space (load capacity ?)
10+ tonne crane
Crew changing (helideck or walk to work)
Standby vessel
Flushed liquid disposal
Multi-well campaign
Phases

I. Preparation
II. Place barriers
III. Remove tree and top of tubing
IV. a) Cut conductor and casings
   b) Remove steel to 10’ below sea bed
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Phase II, Typical Suitable well

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Legend

- Anhydrite
- Claystone
- Dolomite
- Halite
- Limestone
- Leman Sandstone
- Shale

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Production Zone

Packer

SSSV nipple

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Seabed

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Phase II, Placing barriers 1
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Phase II, Placing barriers 2

Legend
- Anhydrite
- Claystone
- Dolomite
- Halite
- Limestone
- Sandstone
- Shale

Production Zone

Packer

SSSV nipple

PERFORATE TUBING, CIRCULATE & FLUSH CLEAN
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Phase II, Placing barriers 3

Legend
Anhydrite
Claystone
Dolomite
Halite
Limestone
Sandstone
Shale

SSSV nipple
PUMP BALANCED CEMENT PLUG (800 FT)
Plug no 1
Packer
Production Zone
gas

Seabed

0 1000 2000 3000 4000 5000 6000 7000
Triassic
Upr Bunter shale
Bunter Sand
Lwr Bunter Shale
Zechstein
Leman
Phase II, Placing barriers 4
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Phase II, Placing barriers 5

Legend
- Anhydrite
- Claystone
- Dolomite
- Halite
- Limestone
- Leman Sandstone
- Shale
- Zechstein

Production Zone
- Gas

Plug no 1
- PUMP BALANCED CEMENT PLUG (500 FT)

Plug no 2
- SSSV nipple

Packer

Seabed

0 1000 2000 3000 4000 5000 6000 7000
- Triassic
- Upr Bunter shale
- Bunter Sand
- Lwr Bunter Shale
- Zechstein
- Leman
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Phase III, Remove tree and top of tubing
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Phase IV, Cut & recover casings and conductor

Legend
Anhydrite
Claystone
Dolomite
Halite
Limestone
Sandstone
Shale

CUT & RECOVER CASING STRINGS AND CONDUCTOR 10 FT BELOW MUD LINE
Case Study

Leman Field
Well Abandonments
2013 & 2004
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Leman Field, 27C Platform

Production - Drilling

27C Drilling
Phase II
Place Barriers
2013
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Cementing Spread
Top deck working area
Case Study

Phase III
Tree and Tubing Removal
(2004)
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Tree and wellhead
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Wellhead and tubing removal
Case Study

Phase IV
Conductor and Casing Cutting and Removal (2004)
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Conductor cutting and removal

27A platform

A abrasive cutting spread

Spreader beams

Casing cutter (manipulator)
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Conductor removal
Comparisons
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Platform Well Abandonments SNS
Time per well

- Cut & recover conductor
- Place cement barriers
- Suspend and Remove tree
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Platform Well Abandonments SNS
Cost per well

Cost per well £k

Rig
SNS Benchmark
Platform Rigless
Conclusions
Conclusions

• A rig is not necessarily required for complete and safe abandonment
• Existing structures already in place can be used
• Significant cost savings have been demonstrated
• Multi-well campaigns
  - share mobilisation
  - efficient equipment utilisation
  - team building/learning
• Benefits in doing some wells while field infrastructure is still available
Thank You