



**SPE Workshop : Well Abandonment featuring Rig  
Reactivation and Alternatives  
27 – 28 June 2017 • Aberdeen , UK**

# Integrated Well Abandonment Solutions – Case Study and Transferring the Learnings From Asia

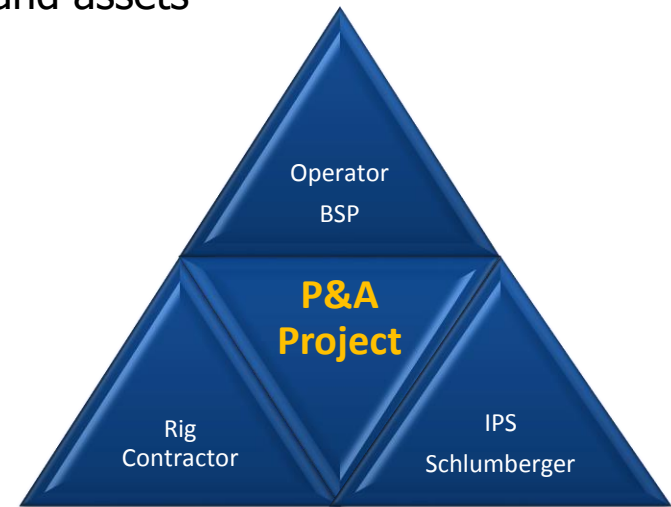
Jamie Stewart (Schlumberger – Kuala Lumpur)

The Schlumberger logo is centered within a white rectangular box with a thin dark border. The word "Schlumberger" is written in a bold, dark blue, sans-serif font.

**Schlumberger**

Share the integration experience in the on-going land P&A campaign executed in Brunei since December 2014 supported by a 3 pillar arrangement:

- **Brunei Shell Petroleum** – Operator, owner of the wells and assets
- **Schlumberger** - Integrated services provider.
- Brunei local rig contractor (**HWU**).



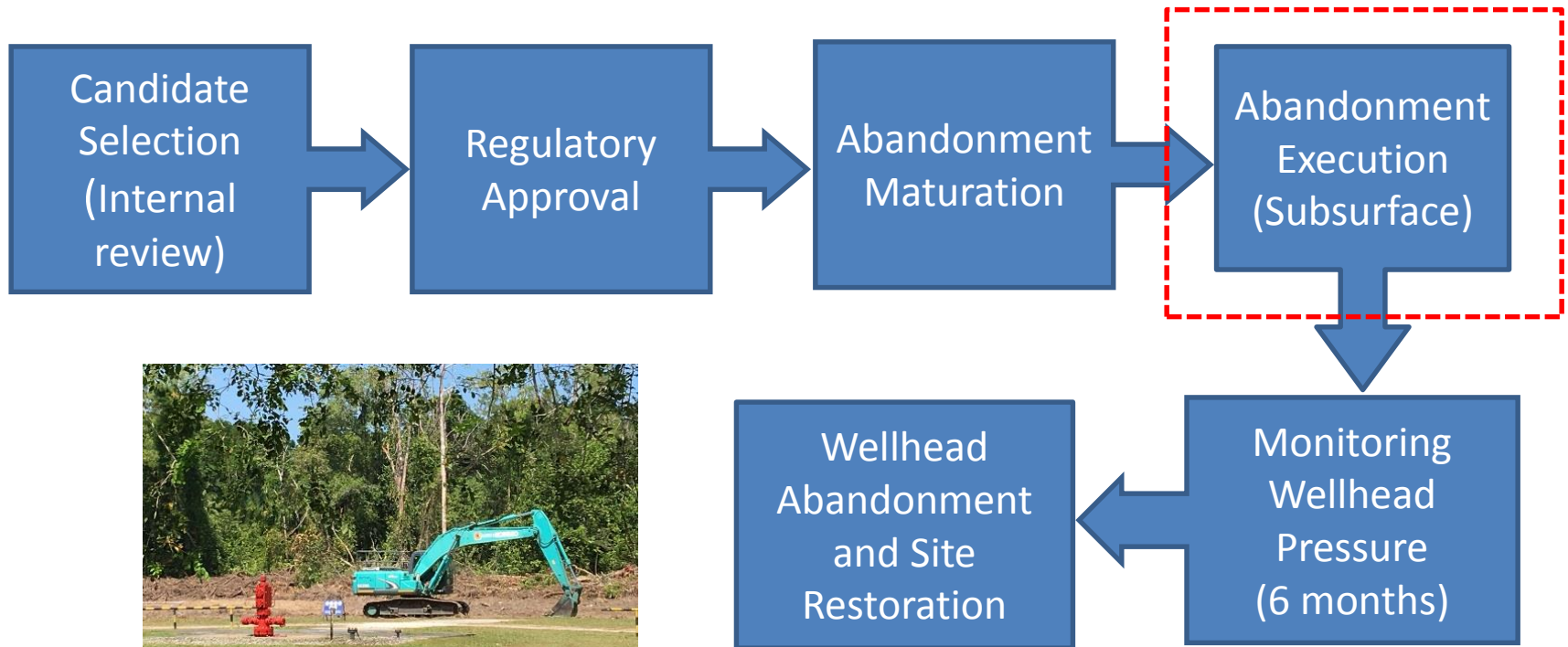
Service integration through the **Execution** stage of P&A.

1. Candidate identification & regulatory approval (BSP)
2. Abandonment Maturation (BSP)
- 3. Abandonment execution (subsurface) (BSP/SLB/HWU)**
4. Monitoring & Wellhead Decommissioning (BSP)



- Mature Land Asset > 85 Years
- Wells around Seria town – Western Brunei
- Campaign Approach for onshore well abandonment
- 30+ abandonments per year

# The Workflow



# Technical/Non-Technical Challenges

- Rig Moves & Noise levels within Populated/Residential Areas
- Illumination at Night of the Work Site
- Well Control Risk – Small but has Potential
- Potential H2S & CO2 Risk – Low



## Mitigations

- Continuous Review and optimization of operations
- Learning Curve (repetitive jobs)
- Single barrier risk based operations
- Core Crew continuity
- Timely Community engagement
- Improved Logistics planning and execution





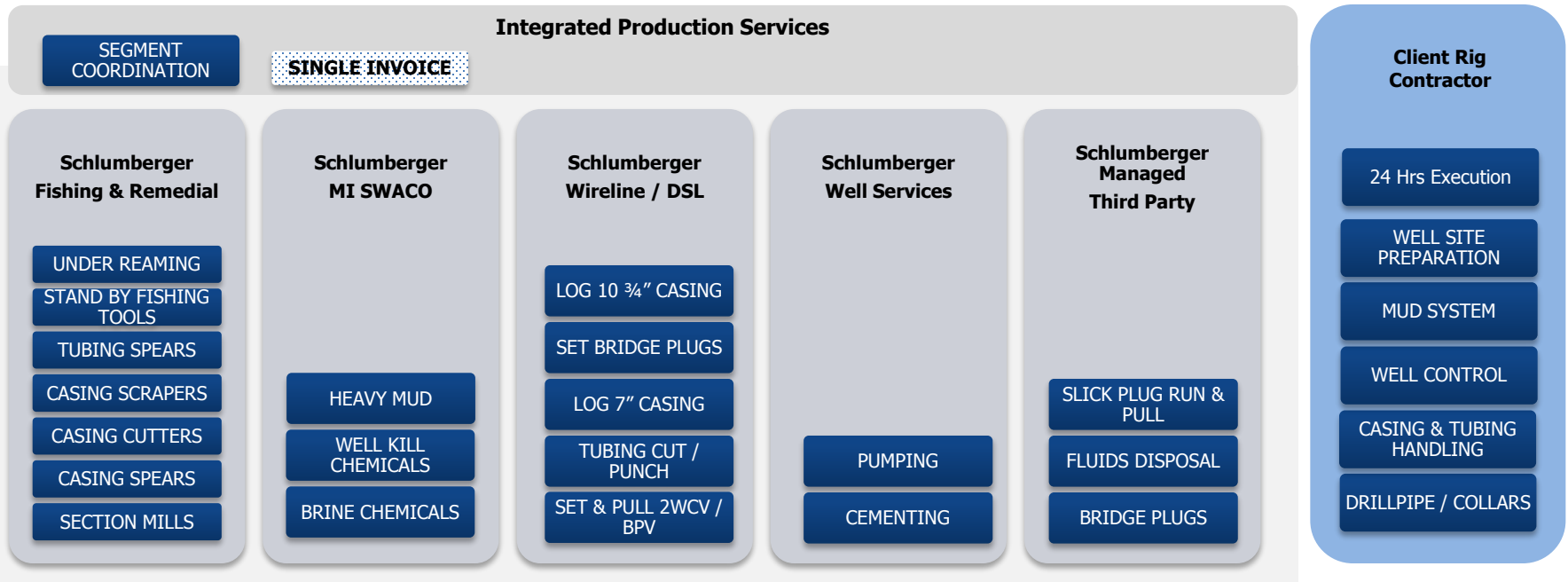


# Service Integration in Well Abandonment Execution (Downhole)

## Integrated Approach

- Model to Improve Performance & reduce Costs
- Crew Continuity Initiative
- Alignment of project goals
- Risk allocation and management
- Optimized personnel interface
- Learning & Continuous Improvement
- Offer Increased Local Employment Opportunities
- Performance Driven
- Minimize footprint
- Joint planning

### Integrated Production Services

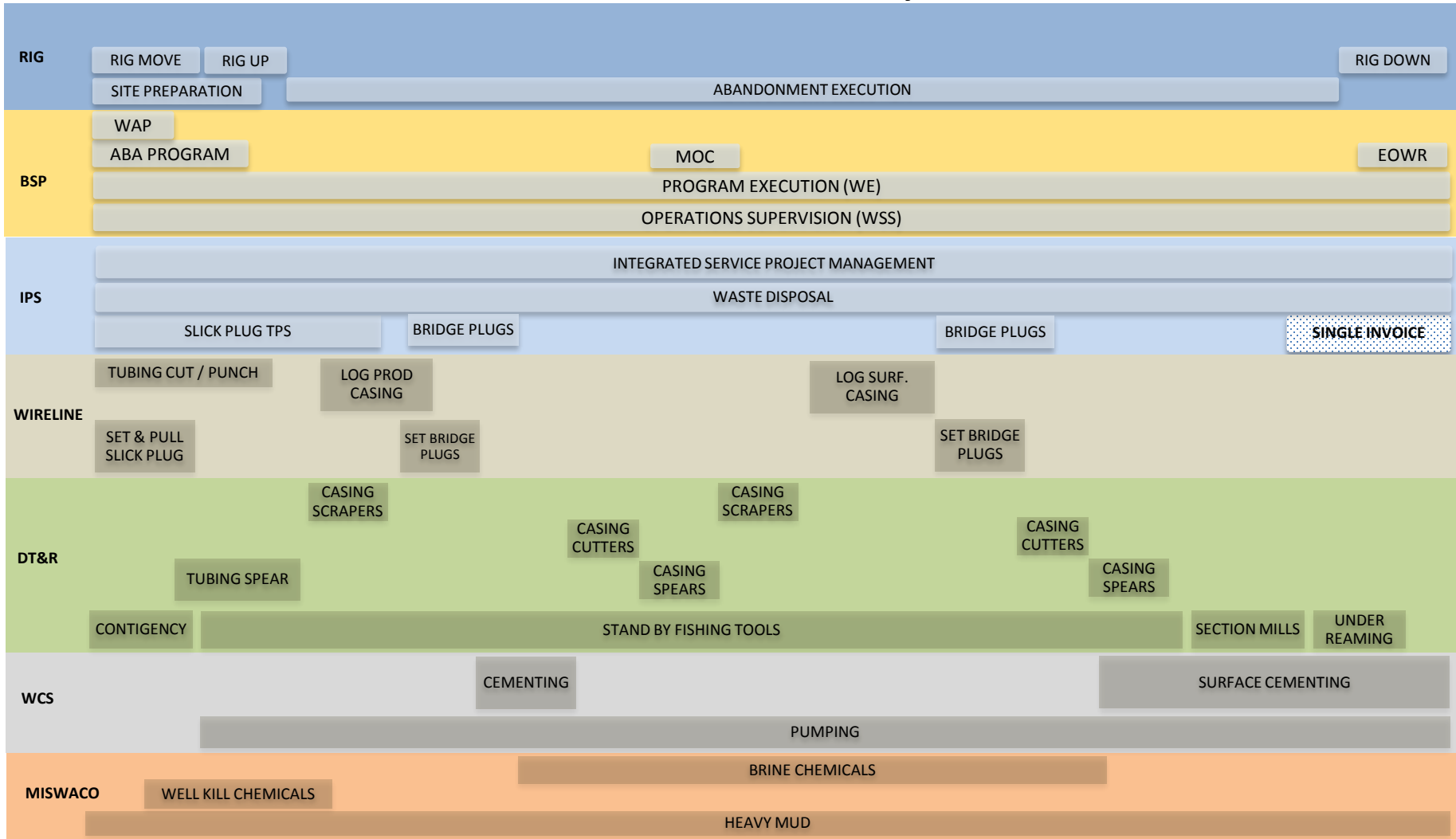






# Abandonment Execution

## Land Well P&A Lifecycle



P&A Start

Well Handover

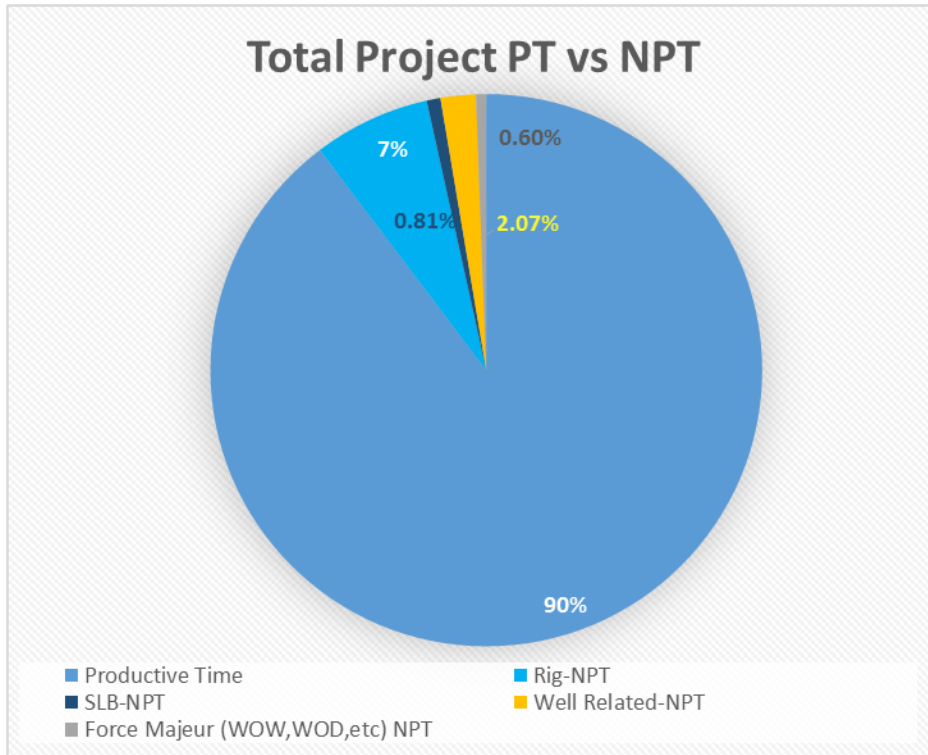
Date

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# Performance Results

- Initial Pilot project started in January 2015 covered 10 Wells
- Project performance exceeded all KPI's, lead to larger scope. Q1 - 2015 onwards to Q1 2017
- Maximized learning curve
- Cost effective solution to minimize operator liabilities

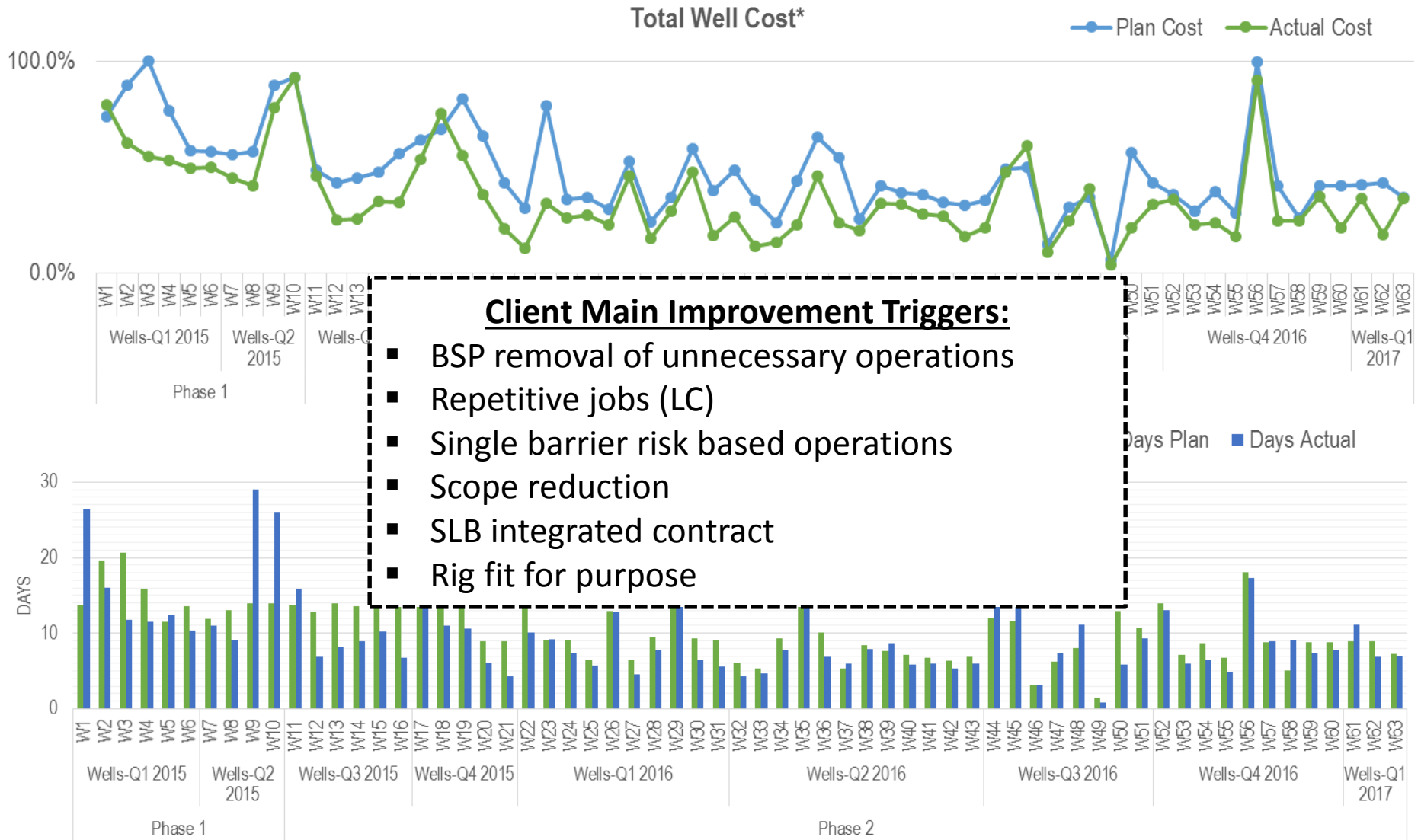


## **Project Resume – Q1 - 2017**

- 63 wells abandoned
- 2 commercial models succeed
- All wells within 3 km from Seria
- Total Operational time: 648 Days
- Operational KPI achieved:
  - *No HSE Incidents*
  - *No Call-off delays*
  - *Zero NPT for Rig Up/Down equipment*
  - *Total SLB NPT < 0.81%*



# Performance Results



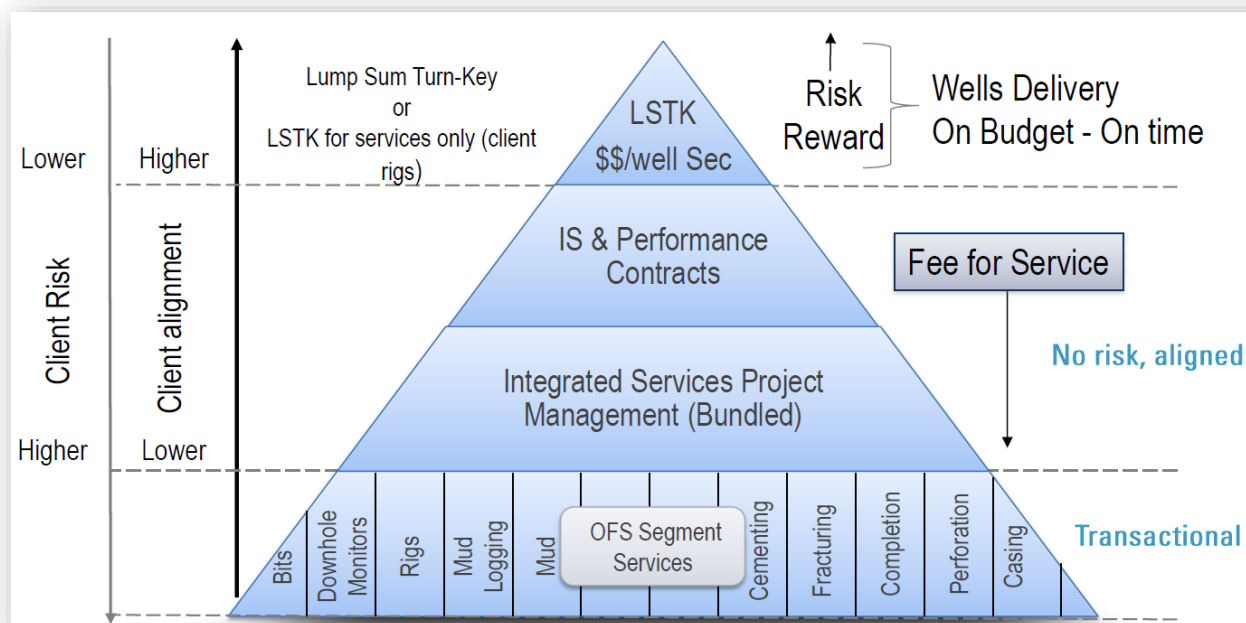
\*Cost info confidential, showing % comparison

## The Benefits of Integrating Services

- Single Point of Contact for Client
- Core Crew – Enhancing Job Familiarity
- Distinctive Reduction in NPT
- Increased Service Quality
- Faster learning curve
- Contractual and technical continuity

## Challenge after optimization

- Bottleneck displaced to maturation & regulatory approval
- Increase on abandonment complexity
- Opportunity for new technology trials
- Open to different business models





# Questions & Answers

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# Thank you

**Schlumberger**

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