Malaysia Production Enhancement Landscape and Key Challenges

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Malaysia Petroleum Management (MPM)
Malaysia - At 30,000 feet

1. Total no of strings ~ 4200 of which 50% are idle
   - Target to achieve 80% active strings by 2020
   - Production enhancement and Idle well reactivation remain as key focus areas

2. More than 22 rigs to be deployed in 2018
   - More than 50 infill projects
   - > 150 new wells
   - Well cost reduction as key target

3. More than 650 wells idle more than 3 years
   - PETRONAS pushing firmly for well P&A
   - Abandonment cost are too high, require drastic reduction
Malaysia Intervention Landscape

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14 Coiled Tubing
84 Slickline
32 E-Line
2 Braided Line

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Production Enhancement Key Challenges

1. Small and Aging Facilities
   - Limited deck area and loading
   - Small crane

2. Weather
   - Only 6 months effective operations
   - High WOW NPT

3. Low Success Rate/High Cost
   - Average of 60% success rate
   - Non economical

4. Sand and Scale Production
   - Continuous re-entry every 3 to 6 months
Perforating Key Challenges

Dual String Access
- 0 deg phasing
- Partial penetration
- Reliable orienting tool

Thru Tubing Perforation
- Non-uniform
- Cross flow
- Risk of gun stuck

Thin Bed Development
- Memory Contact Log
- Well Integrity
Enabler for Challenge – Innovative Contract

RTIC is:
- To reduce exposure on high risk activities
- To increase PE and IWR success rate
- To introduce a framework for risk transfer contracts

RTIC is not:
- A replacement of existing contracts
- A contract to be applied in common low-risk activities
- A rigid contract dictated by MPM to PACs

Current
100% Risk on PETRONAS & PACs

50% to 100%

RTIC
Transference of Risk to Contractor

High POS%
Low UEC
(Other Contracts)

Challenging idle wells. Activities with poor track record, Technology trials

Note:
UEC: Unit Expenditure Cost
POS: Probability of Success
Thank you