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New Well Intervention Means as an Answer to Offshore Minimalist Platform Concept: A Breakthrough from Mahakam, Indonesia

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Abstract

Nowadays oil and gas industry are encouraging the independents and majors to take a fresh look at the technology and concepts required to develop marginal shallow water fields using a minimal platform approach. Innovation on well intervention means (lighter, smaller and less footprint) that fit for Offshore Minimalist Platform (OMP) is needed, including optimizing time and cost during well intervention activities in OMP.

To achieve the objectives, well intervention innovation and technology are the main focuses. Intervention activities commonly done on campaign basis with several units (slickline, wireline, coiled tubing, testing) shall be integrated in a safe manner. The approach of integration shall signify these points:

1. Identifying potential jobs in OMP to be done by well intervention methods
2. Identifying necessary well intervention means and methods to support the jobs (combo unit, microcoil, hazardous zone redefinition, remote operation)
3. Creating project planning and scheduling
4. Performing site visit and risk assessment
5. Implementation and operational execution
6. Evaluation of overall project execution result

The following results were obtained after the integration performed:

1. No major safety issues during operation
2. Exemplary method and risk assessment for well intervention activities which can be applied for next campaigns
3. Trials on well intervention new units and method (combo unit, micro coil, hazardous zone redefinition, remote operation), were safely performed with some optimization
 - 100% success ratio
 - 60% on supply boat arrangement
 - 35% efficiency in N₂ consumption for CT operation
 - 45% efficiency in diesel consumption
 - 20% - 40% efficiency in Rig Up Time
 - 28% less in Job Cost compared to conventional unit

These innovations are proven as reliable method to answer OMP challenges with main advantages on footprint and cost optimization. Through this paper, we would like to share lucrative well intervention breakthrough and innovation in OMP with measurable milestones.
