



High Pressure/High Temperature Well Control

Joe Rousseau | 25 June 2019
Athens, Greece



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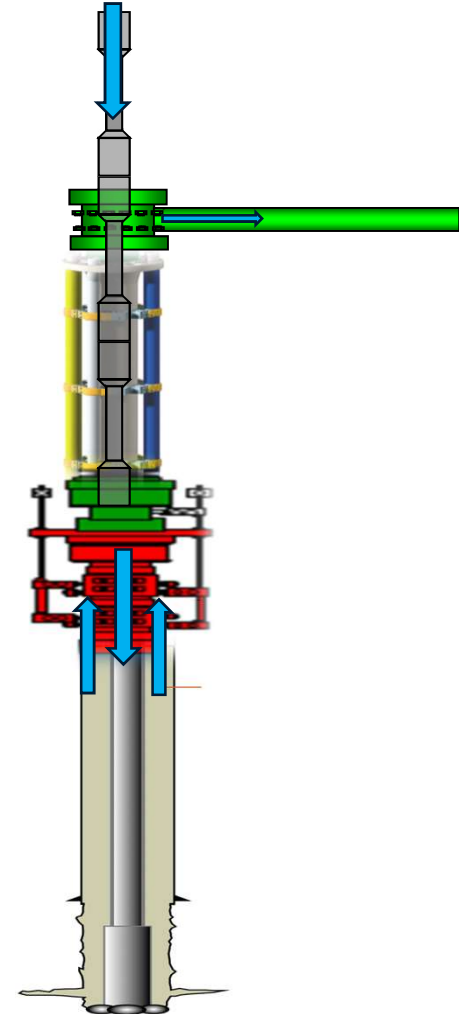
Agenda

- Offshore HPHT Overview
- Technical Considerations
- Technology Qualification
- Organizational Considerations
- Implementation



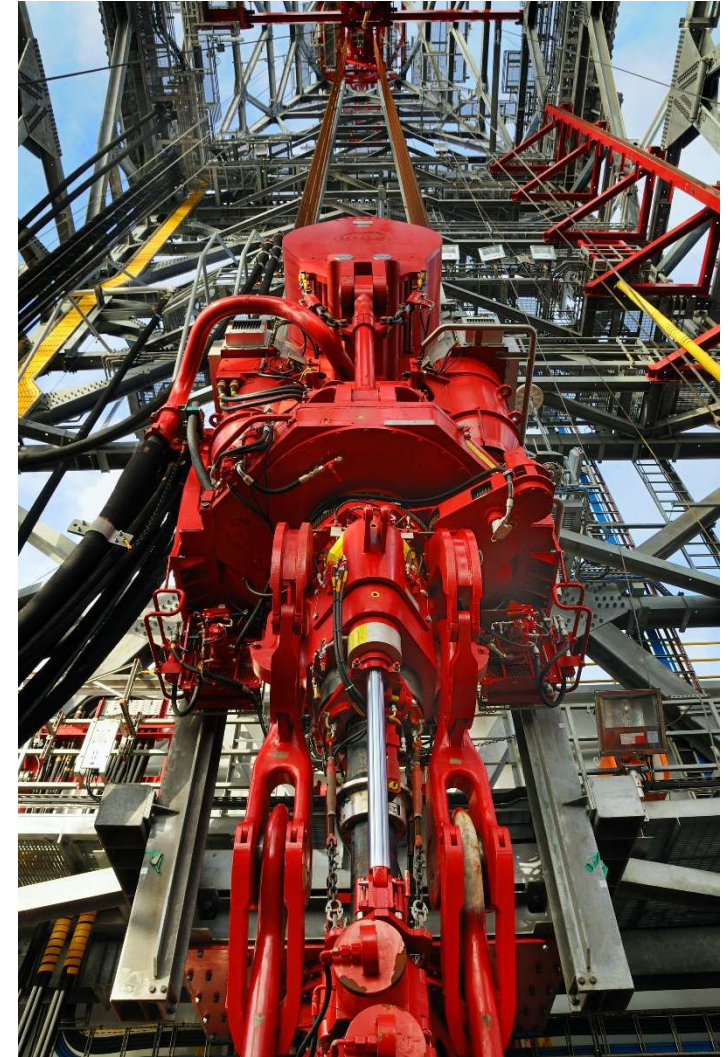
Offshore HPHT Drilling

- Definition
 - Well head pressure ≥ 103 MPa and temperature $\geq 177^{\circ}\text{C}$ (15ksi & 350°F)
- Concerns
 - Lack of clear codes & standards for equipment and system design/manufacture
 - Material capability under HPHT
 - Manufacturing and QA/QC
 - High severity failure consequences



Technical Considerations

- Behavior of mud under HPHT
- Influx behavior
- Impact of HPHT on Material – metallic and non-metallic
- Well design – casing, completion, tubing
- Potential for hydrates



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New Technology Qualification (NTQ)

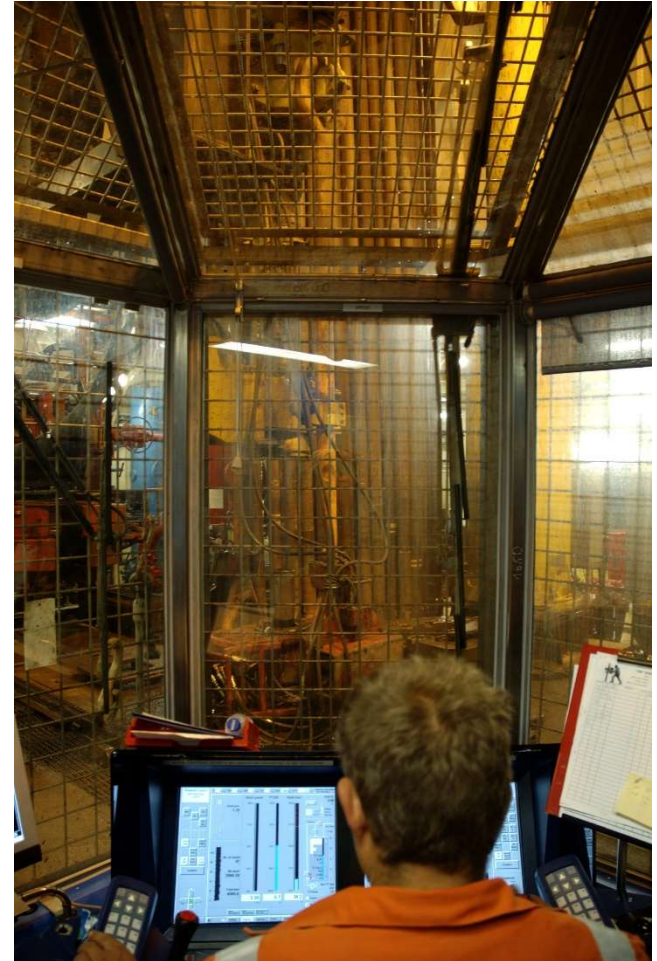
- Examining the system and providing evidence to demonstrate that the technology employed meets specified requirements for the intended use
- Technology Qualification approach
 - ABS Novel Concept Guide, Guidance Notes on Qualifying New Technologies
 - API TR PER15K and 17TR8
 - Existing standards, e.g. ABS Guide for Classification of Drilling Systems



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Organizational Considerations

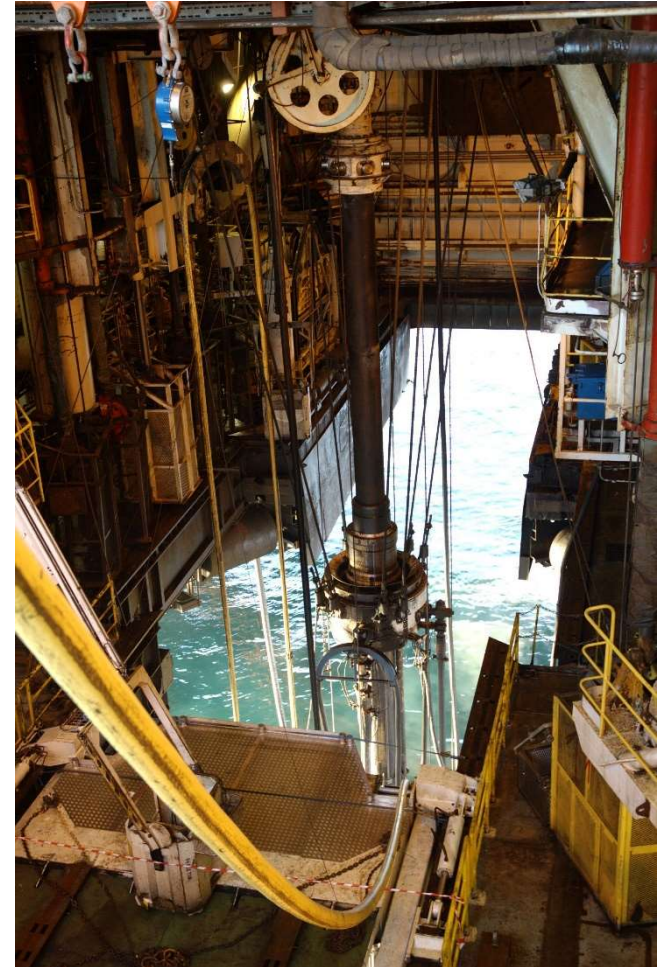
- Corporate management practice (SEMS/QHSE)
- Crew training and competence
- Emergency plan
- Availability of equipment needed for emergency plan
- Alignment between stakeholders
 - Operator
 - Drilling Contractor
 - Other service providers
 - Regulator



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Implementation

- Conversion or New Built MODU
 - Space, lifting & handling capacity
 - Choke & kill system, mud system, riser
 - Controls and instrumentation
- Developing operational procedures
 - SEMS and QHSE procedures
 - Emergency response plans
- Training
 - Normal operation
 - Well control events
 - Emergency response



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Thank You

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