YEA, YES! & YPF Event

Subsea Engineer Competency Framework

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Subsea Engineering

What is it?

Subsea Engineering

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- We identified a need for a career roadmap for students and graduates who wanted to become Subsea Engineers
- EA agreed to add the classification of Subsea Engineer on the NER
- Collaboration with industry to define the relevant areas of competency
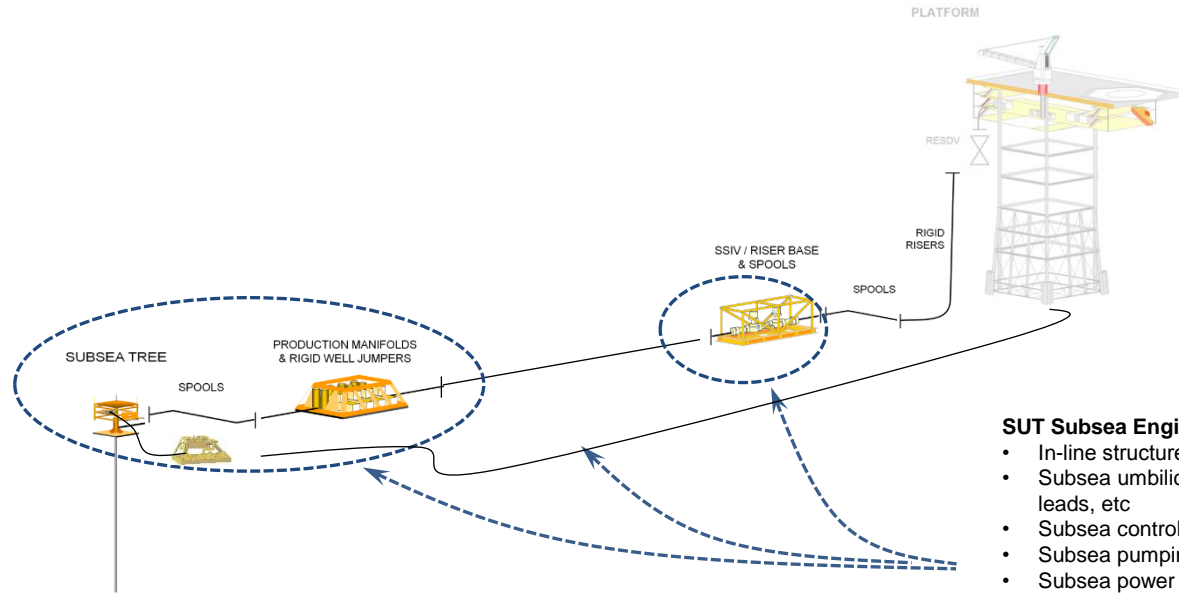
Subsea Engineering

- Battery Limits
  - ensure we capture all areas
  - limit duplication/avoid confusion

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- 3 configurations
  - Platform
  - Floating
  - Subsea to beach

Subsea Engineering

PLATFORM

RESDV

RIGID RISERS

SSIV / RISER BASE & SPOOLS

SPOOLS

SUBSEA TREE

PRODUCTION MANIFOLDS & RIGID WELL JUMPERS

SPOOLS

SUT Subsea Engineering Competency Area:
- In-line structures, SSIV's, Tees, Production Manifolds
- Subsea umbilical and distribution systems, SDU's, UTA's, flying leads, etc
- Subsea control system
- Subsea pumping, compression, separation, processing
- Subsea power distribution systems
- Connecting spools, wellhead jumpers, flexible jumpers and infield flowlines
- Production, water injection or gas lift subsea trees

SPE Petroleum Engineering Competency Area:
- Subsea well drilling & completion activities
- Subsea wellhead and well completion systems
- Subsea well operation and production

APGA & SUT areas of overlap are primarily:
- Submarine flexible flowline systems
- Connecting spools, wellhead jumpers, flexible jumpers
- In-line structures, SSIV's, Tees, Production Manifolds

Subsea Engineering

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- Applicants nominate their classifications and are assessed against these
- Competency = Knowledge & Experience

Subsea Engineering Competency Framework

Legend:
- Area of Competence
- Mandatory Competency Element
- Core Competency Element
- Elective Competency Element

General Subsea Engineering
- (GSE-001) Engineering Degree in a Relevant Discipline
- (GSE-002) Subsea Engineering Fundamentals
- (GSE-003) Professional Conduct Fundamentals
- (GSE-004) Industry Background and Knowledge Fundamentals

Field Development Planning
- (FDP-001) Systems Engineering Fundamentals
- (FDP-002) Systems Engineering Elective
- (FDP-003) Process and Flow Assurance Fundamentals
- (FDP-004) Process and Flow Assurance Elective

Materials and Corrosion Engineering
- (MC-001) Corrosion and Materials Engineering Fundamentals
- (MC-002) Corrosion and Materials Engineering Elective
- (MC-003) External Corrosion and Control Elective
- (MC-003) Welding Elective

Safety, Risk and Environmental Engineering
- (SR-001) Safety and Risk Fundamentals
- (ENV-001) Environmental Engineering Fundamentals
- (ENV-002) Metocean Engineering and Oceanography Elective

Flexible Product, Umbilical and Cables
- (FU-001) Flexible Flowlines, Risers, Umbilicals & Cables Fundamentals
- (FU-002) Flexible Flowlines & Risers Product Design Elective
- (FU-003) Umbilicals and Cable Design Elective
- (FU-004) Flexible Product, Umbilicals & Cable Manufacture Elective

Geotechnical Design
- (GTP-001) Geotechnical and Geophysical Engineering Fundamentals
- (GTP-002) Geophysical Engineering Elective
- (GTP-003) Geotechnical Engineering Elective

Subsea Structures
- (SSS-001) Subsea Structural Design Fundamentals
- (SSS-002) Subsea Structural Design Elective
- (SSS-003) Subsea Structure Manufacture Elective

Mechanical Equipment
- (ME-001) Subsea Equipment Mechanical Design Fundamentals
- (ME-002) Subsea Trees and Running Tools Design Elective
- (ME-003) Subsea Equipment Mechanical Design Elective
- (ME-004) Subsea Equipment Manufacture Elective

Subsea Controls
- (SC-001) Subsea Controls Fundamentals
- (SC-002) Subsea Controls Elective
- (SC-003) Subsea Controls Manufacture Elective

Dynamic Risers and Mooring System Design
- (DRM-001) Mooring and Dynamic Riser System Design Fundamentals
- (DRM-001) Mooring and Dynamic Riser System Design Elective

Installation Engineering and Management
- (IEM-001) Installation Engineering Fundamentals
- (IEM-002) Installation Engineering and Analysis Elective
- (IEM-003) Rig Operations and Equipment Elective

Project Management
- (PM-001) Project Management Fundamentals
- (PM-002) Project Management Elective

Pre-Commissioning and Commissioning
- (PCC-001) Commissioning Fundamentals
- (PCC-002) Commissioning Elective

Subsea Asset Management
- (SAM-001) Subsea Asset Management Fundamentals
- (SAM-002) Subsea Asset Management Elective

New Technology Development and Qualification
- (TDQ-001) New Technology Development and Qualification Fundamentals

Renewable Energy
- (RE-001) Renewable Energy Fundamentals
- (RE-002) Renewable Energy Elective

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- Regulations, starting in QLD as the REPQ, is spreading to other states, Victoria and WA are soon to follow

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- Provide an industry accepted framework to align your training and work experience

- Be transportable across the industry and between employers

Subsea Engineering

Where is it going?

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- Focus on Australia, potential to expand

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- APEC Engineer accreditation

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- Focus on Australia, potential to expand
- APEC Engineer accreditation
- NER occupational categories
  - Professional Engineer
  - Engineering Technologist
  - Engineering Associate

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- SUT (Perth Branch) provide SME's for the assessment process managed by EA

- Ongoing collaboration between EA and industry to ensure relevance

Subsea Engineering

Thank you