## Pre-commissioning and Commissioning Fundamentals

This competency demonstrates that the subsea engineer has sufficient knowledge to effectively and successfully interface with or work within a team performing the planning, and execution of system pre-commissioning, commissioning and start-up of production.

Pre-commissioning includes all activities undertaken during installation and tie-in to prepare systems for production.

Commissioning includes the verification of functionality that cannot be undertaken prior to production.

### Element of Competence

**Working Knowledge of:**
- Piping & Instrument Diagrams (P&IDs), Cause & Effects (C&E) Tables and System Diagrams
- Permit to work and Isolations
- International and Company Standards applicable to pre-commissioning, commissioning and start-up
- Limitations and controls on simultaneous operations (SIMOPS)
- HAZOP, HAZID and Risk Assessment
- Operability Review
- Role of production supervisors / operators/technicians
- Safeguards on temporary equipment
- Management of Change

### What This Competence Means in Practice

Understands system limits, specification breaks and functionality from P&IDs/C&Es including the effect of changes to flow paths, under/over pressure, alarm and trip functionality.

Understands the processes and procedures associated with the site permit to work system. Can raise permits, conduct risk reviews and implement isolations.

Can:
- contribute to pre-commissioning and/or commissioning HAZOP, HAZID and risk assessments.
- contribute to pre-commissioning and/or commissioning operability reviews.
- write pre-commissioning or commissioning plans and procedures.
- identify if temporary equipment has the specified safeguards.
- identify the need for change and raise change requests.

### Indicators of Attainment

Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence

- Has participated and contributed to pre-commissioning and commissioning risk assessments and/or operability reviews.
- Has written pre-commissioning and/or commissioning plans and procedures.
- Has witnessed and approved 3rd party vendors on site undertaking pre-commissioning and/or commissioning tasks.
- Has prepared and presented change requests according to Company procedures.
- Can describe in detail the impact and constraints of subsea facilities commissioning on topsides process facilities and vice versa.
<table>
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<tr>
<th>ELEMENT OF COMPETENCE</th>
<th>WHAT THIS COMPETENCE MEANS IN PRACTICE</th>
<th>INDICATORS OF ATTAINMENT</th>
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<tr>
<td>Working Knowledge of:</td>
<td>Ensures site records and certification meet the requirements of the Handover Dossier and/or Completions Management System</td>
<td>Has transferred site records and certificates to the Handover Dossier or Completions Management System</td>
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<td>● Handover documentation</td>
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<td>● Systems Completion Management System</td>
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Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence.