**Subsea Engineering Competency**

**CONSTRUCTION OPERATIONS ELECTIVE**

This competency demonstrates a subsea engineer has a detailed understanding of construction vessel, ROV, AUV and diving operations in support of installation and/or removal of subsea facilities.

This competency enables a subsea engineer to advise the offshore construction manager on construction operations and lead an offshore installation engineering team.

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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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<tbody>
<tr>
<td>Expert knowledge of:</td>
<td></td>
<td>Has applied expert knowledge for load-out, transportation, deployment, installation, connection and pre-commissioning of subsea facilities</td>
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</table>
| • Onshore lifting for load-out, offshore lifting, deployment and recovery criteria using surface support vessels, specialist transportation vessels and barges | • Identifying and using applicable Australian and international standards  
  • Originating and executing engineering deliverables required for offshore installation of subsea facilities  
  • Application of in-field management of change  
  • Leading a multi-disciplinary offshore installation engineering team to plan and safely execute the installation and pre-commissioning of subsea facilities  
  • Engaging with Marine Warranty Surveyor and other specialists to ensure suitability of vessels and installation equipment and correct application of transportation and installation engineering  
  • Engaging with and influencing Operations during work planning and execution on or adjacent to operational facilities | Can cite examples of where offshore installation activities have been planned and executed successfully and demonstrate examples of influence with other disciplines to achieve this outcome |
| • Sea fastening techniques and methods |                                      | Has demonstrable experience leading a team on at least two projects installing subsea production facilities |
| • Metrology, short and long baseline survey techniques |                                      |                                        |
| • Application of met-ocean data and weather reports to installation engineering, vessel route planning, and defining limiting sea states and safe working practices at sea |                                      |                                        |
| • Safety Management Systems for load-out, transport, installation and pre-commissioning operations |                                      |                                        |
| • Specific diving operations safety management requirements including diver limitations, contingency and rescue operations |                                      |                                        |
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<td>Planning and scheduling for offshore installation works, including simultaneous operations (SIMOPS) activities</td>
<td>Engaging with and influencing other infield vessels during construction works</td>
<td>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</td>
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**INDICATORS OF ATTAINMENT**

- Has led at least two constructability reviews.
- Has led at least two lessons learned workshops and describe a major learning from each.
- Can communicate the HSE, schedule, cost, and risks of executing projects and procedure to different stakeholders.

**Expert knowledge of:**

- HSE factors affecting task plans
- Constructability review and reporting
- Lessons learned
- Contingency planning

**Capable of:**

- Reviewing task plans to improve safety, constructability, schedule, and/or operability
- Integrating lessons learned from past projects into current plans and procedures
- Recognise and provide advice as to which combination of plans and procedures will result in undesirable outcomes in operations

**Working knowledge of:**

- HAZID and HAZOP review techniques
- International & Australian standards associated with offshore installation
- The regulatory requirements associated with offshore installation planning and operations
- The broad range of issues associated with bringing a foreign vessel into Australian waters

**Capable of:**

- Influencing the safe and efficient use of construction assets during installation, including vessels, ROV, AUV and diving teams.
- Appropriate use of Stop Work Authority and satisfactory resolution

**Has demonstrable experience leading a team on at least two projects installing subsea production facilities.**