



# Subsea Engineering Competency Profile



## SUBSEA INTERVENTION AND REPAIR ELECTIVE

**SAM-004**

This competency demonstrates a subsea engineer is able to lead or manage or approve activities in:

- Inspection of subsea production systems
- Intervention for maintenance and repair operations on components of the production system
- Subsea launching and retrieval activities in support of pigging operations
- Re-commissioning of a subsea system following intervention and/or repair

<b>ELEMENT OF COMPETENCE</b>	<b>WHAT THIS COMPETENCE MEANS IN PRACTICE</b>	<b>TYPICAL EXAMPLES OF EVIDENCE</b>
Knowledge of: <ul style="list-style-type: none"> <li>• A wide range of underwater inspection methods, equipment and limits of application</li> <li>• Data collection and management techniques</li> </ul>	Can screen a range of available inspection technologies, data collection and management techniques and define the most appropriate for the task.	Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence  Has specified or approved inspection technologies for specific applications.  Demonstrable experience in inspection operations, troubleshooting and resolution.
Expert knowledge of: <ul style="list-style-type: none"> <li>• Intervention equipment preparation, usage and preservation</li> <li>• Recovery and redeployment of production system components</li> <li>• ROV or diver actuation of valves</li> <li>• Flowline and umbilical connection systems and tooling</li> <li>• Subsea production systems protective structures</li> </ul>	Can identify the potential effects of intervention on the production system; system pressure, electrical continuity, contamination by seawater or debris and leakage of hydrocarbons or control fluids and mitigation/prevention measures.  Can plan and advise on intervention operations with respect to support vessel characteristics, running tools, intervention equipment and spares, deck operations and sea states for safe operation.	Demonstrable experience in intervention operations, troubleshooting and resolution.  Has reviewed and approved subsea intervention and repair procedures.  Has led subsea intervention operations offshore.



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ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	TYPICAL EXAMPLES OF EVIDENCE
<p>Knowledge of repair of subsea production equipment, including;</p> <ul style="list-style-type: none"> <li>● Requirement for and location of isolations for intervention operations</li> <li>● Transportation and handling of replacement and defective components</li> <li>● Limitations of infield repair work versus replacement</li> <li>● Requirements for infield OEM support</li> <li>● Isolations to contain pressure, limit sea water ingress and hydrocarbon release</li> <li>● Corrosion mitigation measures to protect system after exposure to seawater during intervention operations</li> </ul>	<p>Can identify the risks involved in removing and replacing components of a subsea production system.</p> <p>Can specify and advise on the handling requirements for transportation and installation of components of a subsea production system.</p> <p>Capable of interfacing with OEM support personnel during infield repair operations.</p>	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <p>Has project experience in the repair or replacement of subsea production system components or experience of a subsea pigging launch and recovery operation.</p>
<p>Expert knowledge of:</p> <ul style="list-style-type: none"> <li>● Subsea pigging operations including deployment and retrieval</li> <li>● Subsea pigging hardware</li> <li>● Sequencing of intervention activities</li> <li>● Launching, tracking and receiving pigs</li> <li>● Intervention and actuation of pig launcher/receiver functions</li> </ul> <p>Knowledge of:</p> <ul style="list-style-type: none"> <li>● Isolations to contain pressure, limit sea water ingress and hydrocarbon release</li> </ul>	<p>Can identify and define the risks involved in subsea pig launching, tracking and receiving.</p> <p>Can identify and define the importance of isolation barriers, proving of those barriers and when testing needs to be conducted.</p>	



ENGINEERS  
AUSTRALIA

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<b>ELEMENT OF COMPETENCE</b>	<b>WHAT THIS COMPETENCE MEANS IN PRACTICE</b>	<b>TYPICAL EXAMPLES OF EVIDENCE</b>
<p>Knowledge of equipment and chemicals required for re-commissioning including;</p> <ul style="list-style-type: none"><li>• Flushing and containment of contaminants</li><li>• Pressure testing, both local and system</li></ul>	<p>Can mitigate the risk of production start-up complications by limiting seawater and debris contamination.</p> <p>Can elaborate on the importance of correct re-commissioning for effective production start-up.</p>	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <p>Has planned and/or executed a subsea production system re-commissioning procedure.</p>