



Subsea Engineering Competency Profile



SUBSEA ASSET MANAGEMENT ELECTIVE	SAM-002
<p>This competency demonstrates a subsea engineer can lead, manage or approve activities in:</p> <ul style="list-style-type: none"> • The methods of inspecting, monitoring and maintaining subsea equipment • The issues arising from the degradation of subsea facilities due to failure mechanisms caused by the environment and process stream • The methods for determining fitness for service, and manage ongoing integrity and operational limits throughout the lifecycle of operating facilities <p>This competency enables a subsea engineer to identify issues that can arise during long term operation of subsea equipment and the methods to manage these:</p> <ul style="list-style-type: none"> • The subsea engineer will be able to understand the principles of ongoing fitness for service assessments of installed equipment • The subsea engineer understands the principles of risk-based strategies and methods to support operations with inspection, monitoring and maintenance activities 	

ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	TYPICAL EXAMPLES OF EVIDENCE
<p>Expert knowledge of the operational threats to subsea equipment, including:</p> <ul style="list-style-type: none"> • Environmental, Operational and third-party threats • Damage Mechanisms • Condition Assessments 	<p>Understands typical issues that arise during long term operation of subsea equipment and can define methods to manage this.</p> <p>Can identify and define the threats and damage mechanisms that are possible for subsea equipment</p>	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <p>Has managed the integrity of operating subsea equipment for at least two years.</p>
<p>Expert knowledge of inspection, monitoring and maintenance techniques, capabilities and limitations of:</p> <ul style="list-style-type: none"> • Non-destructive testing inspection methods • Monitoring methods • Corrosion measurement and assessment methods • Maintenance requirements and methods 	<p>Capable of prescribing inspection, monitoring and maintenance activities</p> <p>Capable of prescribing fitness for service engineering assessments</p> <p>Can describe the merits and limitations of common inspection and monitoring techniques</p>	



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ELEMENT OF COMPETENCE	WHAT THIS COMPETENCE MEANS IN PRACTICE	TYPICAL EXAMPLES OF EVIDENCE
<p>Knowledge of risk management techniques including:</p> <ul style="list-style-type: none"> Quantitative and qualitative risk assessment including reliability, availability and maintainability modelling Fitness for service assessments Engineering assessment Consequence modelling 	<p>Capable of determining the risk level of subsea equipment and the prioritisation of response actions utilising risk-based techniques.</p> <p>Capable of reviewing and approving engineering and fitness for service assessments.</p> <p>Applies the principles of risk-based strategies and methods to support operations.</p>	<p>Refer to only as many Indicators of Attainment as you need to demonstrate the Element of Competence</p> <p>Has chaired at least two risk assessments.</p> <p>Has reviewed and approved at least three different engineering and fitness for service assessments.</p> <p>Has engaged with specialists in formulating quantitative modelling criteria and/or utilising the modelling results</p>
<p>Expert knowledge of:</p> <ul style="list-style-type: none"> Subsea equipment failure mode identification and management Definition of risk-based strategies Reliability, availability and maintainability assessment and application techniques Reliability centred maintenance methods and application 	<p>Capable of:</p> <ul style="list-style-type: none"> Identifying failure modes of equipment Identifying damage mechanisms Monitoring the rate of change and interaction of damage mechanisms Adjusting inspection and monitoring frequencies 	<p>Has performed each element of this competency on at least two different types of subsea assets e.g. manifold, tree, flowline</p>
<p>Knowledge of subsea operations</p> <ul style="list-style-type: none"> Vessel operations Diving operations ROV operations AUV operations In-line inspections 	<p>Capable of identifying appropriate subsea inspection operations and equipment based on the required activity.</p> <p>Able to draft, review and approve inspection and monitoring work scopes.</p>	<p>Has managed at least three different subsea operations and understands their capabilities and limitations.</p>