



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **PUADEFDV016B Perform underwater rigging work**

**Revision Number: 1**

## **PUADEFDV016B Perform underwater rigging work**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit Descriptor**

This unit covers the competency required to complete underwater rigging work.

The unit also includes securing and moving submerged loads through the employment of blocks and tackle, chains, slings, and cordage.

The diver will be required to establish secure lift points, to set rigging equipment between the load and the lifting platform, and to control the conduct of the lift. Attention must be given to safety during the lift particularly with regard to other divers and nearby surface vessels and/or structures. Consideration must also be given to the environmental impact of any work undertaken.

Note: This Unit of Competency relates, in part, to the existing standards of the Australian Diver Accreditation Scheme (ADAS). All information was correct at the time of development of this Unit of Competency; however, any diver seeking ADAS accreditation should consult ADAS and not rely on the information contained in this unit.

## Application of the Unit

### Application of the Unit

The application of this unit in the workplace - the environments, complexities and situations involved - will be written during Phase II of the Review of the PUA00 Public Safety Training Package.

This text will be useful for the purposes of job descriptions, recruitment advice or job analysis; where possible, it will not be too job specific to allow other industries to import it into other Training Packages, where feasible.

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

### Prerequisite Unit/s

PUADEFDV001B Dive using self contained underwater breathing apparatus in open water to 30 metres

## Employability Skills Information

### Employability Skills

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

## Elements and Performance Criteria

### ELEMENT

### PERFORMANCE CRITERIA

- | ELEMENT  | PERFORMANCE CRITERIA   |
|--|--|
| 1. <b>Prepare for underwater rigging operation</b>                     | <ul style="list-style-type: none"><li>1.1 <i>Load metrics</i> and <i>worksite data</i> are determined and analysed to determine the specific requirements for <i>rigging gear</i></li><li>1.2 Work plan is developed consistent with the dive plan</li><li>1.3 Rigging gear is <i>selected, inspected and prepared</i></li><li>1.4 Rigging gear is secured safely to/from the dive site</li><li>1.5 Access obstructions and other hazards are assessed and <i>action</i> is taken to <i>remove/reduce the risk</i></li></ul> |
| 2. <b>Lift and handle submerged objects using mechanical advantage</b> | <ul style="list-style-type: none"><li>2.1 <i>Lift points</i> are established to secure the object to the <i>lifting device</i></li><li>2.2 Work-safe area is established and the location and safety of divers is confirmed prior to commencing the lift</li><li>2.3 Lifting devices are operated within accepted <i>load tolerances</i></li><li>2.4 Raised objects are anchored off to allow associated work to be undertaken in safety</li></ul>   |
| 3. <b>Conclude underwater rigging operations</b>                       | <ul style="list-style-type: none"><li>3.1 <i>Environmental impact</i> arising from the work task is minimised and waste products are recovered</li><li>3.2 Rigging gear is disassembled, <i>de-serviced</i> and stored after use</li><li>3.3 Log books are completed</li></ul>   |

## **Required Skills and Knowledge**

### **REQUIRED SKILLS AND KNOWLEDGE**

This describes the essential skills and knowledge and their level, required for this unit.

#### **Required Skills**

- check equipment
- inspect equipment for serviceability and functionality
- planning
- rig equipment

#### **Required Knowledge**

- determination of mass of submerged objects
- dive equipment
- dive physics
- general occupational/diving safety awareness
- marine hazards
- oceanography
- relevant references and Australian Standards

## Evidence Guide

### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessment must confirm the ability to attend to personal and collective safety; and to consider the environmental impact as part of the dive plan.

### Consistency in performance

Competency should be demonstrated during a physical rigging and lifting operation where the diver conducts the following lifts with mechanical devices:

- 1 x vertical lift to surface:
- lift distance – at least 5 metres (object must breach surface)
- depth – between 5 to 20 metres
- weight – at least 250 k

### Context of and specific resources for assessment

#### Context of assessment

Competency should be assessed in the ocean supported by questioning on shore or aboard vessels.

When practicable, assessment should relate to the diver's vocational focus.

#### Specific resources for assessment

Access to a complete range of diving, safety and accessory equipment; and rigging equipment.

### Guidance information for assessment

Information that will assist or guide assessment will be written during Phase II of the Review of the PUA00 Public Safety Training Package.

## Range Statement

### RANGE STATEMENT

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the Performance Criteria is detailed below.

<b>Load metrics may include</b>	Centre of gravity
	Composition
	Dimensions
	Lift points
	Weight
<b>Worksite data may include</b>	Depth
	Gradient
	Hazards
	Obstacles
<b>Rigging gear may include</b>	Air and hydraulic motors
	Blocks and tackle
	Bolts
	Chain hoist
	Chains
	Clamps
	Clocks and wedges
	Cradle timbers
	Equalising gear
	Eye bolts
	Feeler gauges
	Fibrous rope
	Fishplates
	Fixing brackets
	Jacks
	Karabiners and shackles
	Packers
	Puller systems

**RANGE STATEMENT**

	Rigging screws
	Rollers
	Skates
	Skids
	Sliding shoes
	Slings
	Spreader beams
	Steel wire rope
	Turfers
	Turn buckles
	Winches
<b>Selecting, inspecting and preparing rigging gear may include</b>	<p>Checking of test certificates</p> <p>Establishing end-brackets:</p> <ul style="list-style-type: none"> <li>• wedged end sockets</li> <li>• bulldog clips</li> <li>• eyed bolts</li> </ul> <p>Identifying load tolerances</p> <p>Testing functionality of:</p> <ul style="list-style-type: none"> <li>• karabiner and shackle hinge and sleeve checks</li> <li>• movement of blocks and tackle</li> <li>• start-up of air and hydraulic motors</li> </ul>
<b>Action to remove/reduce the risk may include</b>	<p>Erecting signage</p> <p>Using patrol/sentry craft</p>
<b>Lifting points may include</b>	<p>Single</p> <p>Multiple</p>
<b>Lifting devices include</b>	<p>Blocks and tackle</p> <p>Hydraulic/pneumatic lift</p>
<b>Operating lifting devices may include</b>	<p>Lowering</p> <p>Raising</p> <p>Shifting laterally</p>
<b>Load tolerances may include</b>	<p>Safe Working Load (SWL)</p>



**RANGE STATEMENT**

	Working Load Limit (WLL)
<b>Environmental impact may include</b>	Contamination of surrounding water (e.g. leaking oil) Physical damage to reef and associated floor eco-systems (e.g. coral) Visual pollution of waste material (e.g. concrete and metal parts)
<b>De-servicing may include</b>	Coiling and cordage Drying Logging work details into equipment logs Oiling/greasing Washing in fresh water

**Unit Sector(s)**

Not applicable.

**Corequisite Unit/s**

**Co-requisite Unit/s** Nil