



Australian Government

Department of Education, Employment and Workplace Relations

PUADEFDV007B Dive using closed-circuit breathing apparatus (HeO₂) in open water to a maximum depth of 60 metres

Release: 1

PUADEFDV007B Dive using closed-circuit breathing apparatus (HeO₂) in open water to a maximum depth of 60 metres

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

This unit covers the competency required to dive using closed-circuit breathing apparatus (CCBA) (HeO₂) in an **open water environment** to a maximum depth of 60 metres.

This unit specifically covers those aspects of performance unique to **CCBA (HeO₂)**, such as operating the HeO₂ compressor/hand-booster pump, inspecting and operating CCBA (HeO₂) equipment, and conducting CCBA (HeO₂) specific contingency drills.

This unit also includes the HeO₂ standby diver responsibility of mid-water casualty handover.

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 SROSCB008A Inspect and fill SCUBA cylinders
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Employability Skills Information

Employability Skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Operate an HeO ₂ compressor/hand-booster pump	1.1 Compressor and <i>associated equipment</i> are inspected for serviceability 1.2 <i>Protective equipment</i> is fitted 1.3 Leads and hoses are connected to the compressor 1.4 Gas cylinders are charged to maximum working 1.5 <i>Operator level maintenance</i> is performed on the compressor 1.6 Compressor is de-serviced after use
2. Conduct dive operations	2.1 CCBA (HeO₂) is selected, inspected for serviceability, and fitted and tested (both out of water and in-water) 2.2 Dives are conducted using CCBA (HeO₂) and <i>dive contingencies</i> are demonstrated 2.3 Mid-water casualty handover is conducted between an HeO₂ standby diver and an air standby diver 2.4 CCBA (HeO₂) is de-serviced and defects are reported in accordance with organisational procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

- conduct buddy breathing
- conduct ditching drills
- conduct lost buddy drills
- conduct unconscious companion diver drills
- conduct standby diver drills
- fit and check CCBA (HeO₂)
- identify distress and illness in others at depth
- inspect and prepare CCBA (HeO₂)
- monitor CCBA (HeO₂) equipment and gauges
- recover and clear mask and mouthpiece
- refurbish CCBA (HeO₂) post-dive

Required Knowledge

- CCBA (HeO₂) dive equipment characteristics and limitations
- CCBA (HeO₂) characteristics and limitations
- dive physics
- dive physiology and medicine
- general occupational/diving safety awareness
- hazards of Heliox
- marine animal threats
- marine hazards
- oceanography
- relevant references and Australian Standards
- safe operating ranges for air-supplies
- standby diver responsibilities

Evidence Guide

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

Assessment must confirm the ability to:

- arrange for others to check equipment
- conduct in-water checks
- handle non-functional equipment items
- prepare equipment for the dive including charging of cylinders
- maintain equipment during the dive
- refurbish equipment post-dive
- recover and clear mask and mouthpiece
- safely enter and exit the water appropriate to the launch platform, equipment and conditions
- switch from primary to the reserve air system
- implement contingency and emergency drills such as:
 - ditching drills
 - buddy breathing
 - unconscious companion diver drills
- HeO₂/air standby diver mid-water casualty handover drill.

Consistency in performance

Competency will be demonstrated over a minimum of 4 dives with the diver diving to a depth not greater than 60 m using CCBA (HeO₂) in open water that includes the following requirements:

- oceans, seas, lakes and rivers
- day and night
- sub-surface conditions:
- a range of surface and sub-surface hazards
- current (0–2 knots)
- temperature (0 degrees +)
- visibility (0 metre +)

Table 1 (below) outlines the minimum dives required by this Unit of Competency.

Table 1

Condition	No of Dives	In-water time	Remarks
Between 0-60m	4	60 min	Total accrued sub-surface time

Context of and specific resources for assessment

			(0-60m)
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Context of assessment

Competency will be assessed in the ocean over a range of oceanic, diurnal and nocturnal environments, 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 complete range of CCBA (HeO₂) diving, safety and accessory 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.

Open water environment may include

- Day or night
Oceans, seas, lakes and rivers
Sub-surface conditions:
- anchor drop zones
 - current (0-2 knots)
 - cathodic protection devices
 - electrical cabling
 - inlets and sonar/radio frequency hazards
 - marine animal
 - pipelines
 - pollutants
 - propellers/thrusters
 - spiers and jetties
 - surface and sub-surface hazards such as:
 - temperature (0 degrees +)
 - trapping hazards:
 - beams
 - culverts
 - gates
 - grottoes and caves
 - intakes and out-falls
 - nets
 - safety, anchor and communications lines
 - sewers
 - sluices
 - submerged ships, vehicles and structures
 - visibility (0 metre +)
 - vessel rocking and associated movement

CCBA (HeO₂) may include

Counter-lung
Emergency cylinder
Facemask /mouthpiece
HeO₂ cylinder
Scrubber material

Associated equipment may include

Hoses
Pumps

RANGE STATEMENT

Protective equipment may include

Gloves
Goggles

Operator level maintenance may include

Checking existing pressure in cylinders with pressure gauge
Conducting charging in (HeO₂) clean environment
Following correct charging procedure and charging rate
operating high pressure charging panels

Dive contingencies may include

Buddy breathing
Companion diver
Flooded mask
Fouled supply
Hose blockage/choking
Hose rupture
Partial pressure anomalies
Set to 40 bar
Trouble drill

Unit Sector(s)

Not applicable.

Corequisite Unit/s

Co-requisite Unit/s

Nil