



Australian Government

Department of Education, Employment and Workplace Relations

PUADEFDV014B Perform concreting in an underwater environment

Revision Number: 1

PUADEFDV014B Perform concreting in an underwater environment

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

This unit covers the competency required to concrete simple forms and excavations in an underwater environment.

The unit also includes preparing the underwater site for concreting including any necessary excavation and levelling, constructing simple formwork and positioning reinforcement rods and fixed anchorages.

The diver will need to prepare the concrete with consideration given to strength and setting periods. The concrete will need to be poured and screeded to the required finish.

The diver will be responsible for the recovery of formwork and waste arising from the work task to ensure the preservation of the environment. Finally, the concreting tools must be de serviced and stored appropriately for ongoing use.

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

1. Prepare for underwater concreting

- 1.1 **Work task** and **worksite data** are determined and analysed to determine the specific requirements for the **concrete**
- 1.2 Work plan is developed consistent with the dive plan
- 1.3 **Concreting equipment** is **selected, inspected and prepared** including **protective equipment**
- 1.4 Concreting equipment is secured safely to/from the dive site
- 1.5 Access obstructions and other hazards are assessed and **action** is taken **to remove/reduce the risk**

2. Concrete underwater site

- 2.1 Work-safe area is established at the worksite
- 2.2 Site is cleared and levelled in preparation for the pour
- 2.3 **Formwork** is assembled including stripping agents
- 2.4 Reinforcing bars, rods, stirrups and mesh, bar chairs and spacers are positioned
- 2.5 Cement is mixed in accordance with the setting and strength specifications
- 2.6 Location and safety of divers is confirmed prior to commencing the pour
- 2.7 Cement is **delivered** to the site with a consistent flow
- 2.8 Concrete is spread to the required levels incorporating expansion joints
- 2.9 Concrete is screeded to a level and the surface is finished using floats or brooms
- 2.10 Concrete is **protected** during curing

3. Conclude underwater concreting

- 3.1 **Environmental impact** arising from the concreting is minimised and waste products and formwork are recovered
- 3.2 Concreting and protective equipment are de-serviced and stored after use

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

- establish formwork
- mix and pour cement
- operate cement tools and equipment
- screed concrete

Required Knowledge

- concreting on land
- dive equipment
- dive physics
- general occupational/diving safety awareness
- oceanography
- relevant references and Australian Standards
- work hazards

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 work task where the diver conducts an underwater concreting task such as the reinforcement of pier legs, the placement of footings or laying of a slab or ramp.

Context of and specific resources for assessment

Context of assessment

Competency should be assessed in the ocean.

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

Specific resources for assessment

Access to a dive location, a complete range of concrete ingredients and concreting 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.

Work task may include	Pad foundation Post holes Slabs Trench foundations
Worksite data may include	Current Depth Gradient Hazards Obstacles Temperature
Concrete may vary by	Composition/strength Setting time
Concreting equipment may include	Manual, fuel and electrically operated mixers Shovel Vibrator
Selecting, inspecting and preparing concreting equipment may include	Pre-construction of formwork Pre-mixing
Protective equipment may include	Boots Gloves
Action to remove/reduce the risk may include	Erecting signage Using patrol/sentry craft
Formwork may include	Bracing Edge boards Pegs Struts

RANGE STATEMENT**Delivery of cement may be via**

Manual
Pump-line
Shute

Protection of concrete may include

Use of plastic sheeting

Environmental impact may include

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)

Unit Sector(s)

Not applicable.

Corequisite Unit/s**Co-requisite Unit/s**

Nil