Australian Government

DEFDV014B Perform concreting in an underwater environment

Release 2

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

DEFDV014B Perform concreting in an underwater environment

Modification History

Release	TP Version	Comments
2	DEF12 V2	Layout adjusted. No changes to content.
1	DEF12 V1	Primary release.

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

As agreed in the creation of this Training Package, applications for units transferred from the PUA00 Public Safety Training Package will be developed as part of continuous improvement plans, and taking into account the change in Unit of Competency format as detailed in templates for Streamlined Training Packages

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

DEFDV001B Dive using self contained underwater breathing apparatus in open water to 30 metres.

Employability Skills Information

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 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

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.

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
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.