



Australian Government

DEFWDV017 Employ thermal cutting and welding tools (non-load bearing) in an underwater environment

Release: 1

DEFWDV017 Employ thermal cutting and welding tools (non-load bearing) in an underwater environment

Modification History

Release 1. This is the first release of this unit of competency in the DEF Defence Training Package.

Application

This unit specifies the skills and knowledge required to use thermal cutting and welding tools in an underwater environment.

It includes preparing underwater cutting and welding tools, operating the generator, selecting appropriate work task tools and inspecting them for serviceability, and securing tools on own body throughout dive. It also includes the surface operation of the electrical generator or gas cylinders supplying the tools, recovering waste, and deservicing and storing equipment.

This unit applies to persons working as Defence Work Divers, or to others working in this field.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Persons undertaking this unit would work independently performing specific tasks in a range of contexts that could be unpredictable.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable

Competency Field

Work Diving

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 1 Prepare for cutting and welding underwater | 1.1 Identify and analyse work task, worksite data and work object to determine task requirements |
| | 1.2 Develop work plan consistent with dive plan in accordance with organisational procedures and task requirements |
| | 1.3 Select, inspect and prepare thermal cutting and welding tools, electrical generator and associate leads, and oxy acetylene gas cylinders and associated hoses, in accordance with manufacturer specifications |
| | 1.4 Secure equipment for transport to/from dive site |
| | 1.5 Identify obstructions and other cutting/welding hazards to determine risk and to manage risk control measures in accordance with dive plan |
| 2 Operate thermal cutting and welding tools underwater | 2.1 Secure thermal cutting and welding tools on self during dive |
| | 2.2 Determine safe routes for leads and hoses to worksite in accordance with dive plan and operational safety procedures |
| | 2.3 Determine safe work area and confirm location of other divers prior to commencing cutting/welding work tasks, in accordance with work plan |
| | 2.4 Manage cutting and welding tool hazards in accordance with dive plan and operational safety procedures |
| | 2.5 Disconnect and render tools safe in accordance with dive plan and operational safety procedures |
| 3 Operate generator | 3.1 Conduct routine operational and pre-start checks and diagnose and address warning signs in accordance with manufacturer specifications |
| | 3.2 Shut down and/or conduct emergency shut down drills in accordance with dive plan |
| 4 Complete underwater cutting and welding operations | 4.1 Minimise environmental impact arising from use of thermal cutting and welding tools, and recover waste products |

4.2 De-service and store equipment on task completion in accordance with organisational procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces but is not equivalent to DEFVDV017B Employ thermal cutting and welding tools (non-load bearing) in an underwater environment.

Links

Companion Volume -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6bdbab1e-11ed-4bc9-9cba-9e1a55d4e4a9>

Assessment Requirements for DEFWDV017 Employ thermal cutting and welding tools (non-load bearing) in an underwater environment

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying relevant legislation, standards, and organisational policies and procedures
- completing underwater cutting and welding operations safely
- cutting 12 mm steel plates
- identifying and addressing relevant cutting/welding workplace hazards and problems
- operating generator to support welding tasks in an underwater environment
- operating thermal cutting and welding tools underwater
- planning for cutting and welding underwater
- stabilising a generator
- undertaking underwater welding activities including:
 - preparing surface of work object for cut or weld
 - controlling voltage and amperage of arc welding equipment
 - turning on gas supplies
 - adjusting ratios of oxygen and acetylene
 - controlling pressure of oxy acetylene torch
 - making cuts and welds ensuring minimal distortion to object
 - inspecting and cleaning cuts and welds
 - developing power gradually without surging
- using a number of thermal cutting and welding tools (non-load bearing) in an underwater environment work tasks:
 - at depths between 5 metres and 20 metres
 - on at least one night work task
- welding manual metal arc using electric welding equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of

the requirements of the elements and performance criteria and include knowledge of:

- dive equipment
- dive physics
- dive physiology and medicine including:
 - heat and cold illnesses
 - compression illnesses
 - decompression illnesses
- diving descent and ascent techniques
- general diving safety awareness including:
 - diving in harbours
 - diving in tidal waters, currents and tides
 - diving on and/or near a ship's bottom
 - lost/separated
 - entrapment/foul lines
 - marine animal threats
 - pollution/weeds
 - working in confined spaces
- oceanography
- relevant cutting/welding workplace hazards and problems
- relevant legislation, standards, and organisational policies and procedures
- thermal cutting and welding principles and techniques.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- ocean with a range of oceanic, diurnal and nocturnal environments
- applicable documentation including organisational procedures, regulations, codes of practice

and operation manuals.

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

Links

Companion Volume -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6bdbab1e-11ed-4bc9-9cba-9e1a55d4e4a9>