



**Australian Government**

# **MARF3007A Work safely in confined spaces on a vessel**

**Release 1**

# **MARF3007A Work safely in confined spaces on a vessel**

## **Modification History**

Release 1

This is the first release of this unit.

This unit replaces and is equivalent to TDMMF5907A Work safely in enclosed spaces on a vessel.

## **Unit Descriptor**

This unit involves the skills and knowledge required to enter and work safely in confined spaces on a vessel.

## **Application of the Unit**

This unit applies to all maritime employees who could be required to work in, on or around confined spaces on board a vessel.

## **Licensing/Regulatory Information**

Not applicable.

## **Pre-Requisites**

Not applicable.

## **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. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

- |  |  |
|--|--|
| <b>1 Identify confined spaces and their regulatory framework</b> | <p>1.1 <i>Characteristics of a confined space</i> are outlined</p> <p>1.2 <i>Confined spaces</i> in the workplace are identified</p> <p>1.3 <i>Regulations</i> and <i>standards</i> relevant to confined space operations on <i>vessels</i> are identified</p> <p>1.4 Relevant <i>codes of practice</i> and sources of guidance for undertaking confined space work are identified</p> <p>1.5 Potential <i>hazards</i> of confined spaces are identified</p>                 |
| <b>2 Assess confined space for entry</b>                         | <p>2.1 Purpose and need to enter confined space is confirmed</p> <p>2.2 Hazards in and around confined space and those associated with work to be performed are identified</p> <p>2.3 <i>Risk</i> assessment is conducted and documented according to organisational procedures</p> <p>2.4 <i>Risk control measures</i> are identified and documented</p>  |
| <b>3 Obtain permission to enter confined space</b>               | <p>3.1 Process and documentation required for authorisation to enter confined space are identified</p> <p>3.2 Permission to enter and work in confined space is sought from <i>authorised personnel</i> on vessel according to regulatory and organisational requirements</p> <p>3.3 <i>Permit requirements</i> associated with confined space entry and work to be performed are confirmed and completed</p>  |
| <b>4 Plan and prepare for entry</b>                              | <p>4.1 Appropriate plan is prepared for completion of work activity in confined space</p> <p>4.2 Process is followed to ensure confined space is <i>ready for entry</i></p> <p>4.3 Appropriate <i>personal protective clothing and equipment</i> is selected and used correctly</p> <p>4.4 <i>Entry equipment</i> is made ready and used according to manufacturer operating instructions</p> <p>4.5 <i>Precautions during entry</i> are identified to protect occupants</p> |
| <b>5 Apply emergency</b>   | <p>5.1 <i>Role and responsibilities of standby person/s</i> are clearly defined</p> <p>5.2 Planned emergency procedures appropriate for circumstances are</p>  |

- procedures** implemented
- 5.3 Personal protective equipment and *emergency rescue equipment* is selected, prepared and used
- 6 Conclude confined space operations**
- 6.1 Personnel involved and equipment used are accounted for
- 6.2 Equipment is cleaned, inspected and/or serviced prior to stowage
- 6.3 Confined space entry is secured, isolations are removed and space is returned to normal
- 6.4 Permit is withdrawn and documentation is completed according to regulatory requirements and organisational policy

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required Skills:

- Complete necessary documentation associated with confined space entry
- Identify and implement control measures to mitigate risk
- Recognise defective equipment and take appropriate action
- Recognise hazards and risks when preparing to enter, entering and working in confined spaces
- Read and interpret regulations, codes of practice, permit requirements, instructions and procedures for entry into a confined space on a vessel
- Select, inspect and use safety and emergency equipment according to operating instructions
- Use atmospheric detection equipment and interpret the readings
- Use basic verbal and/or defined communication skills and signals when entering and working in confined spaces
- Work safely and collaboratively with others when entering and working in a confined space

### Required Knowledge:

- Atmospheric testing and monitoring equipment and techniques
- Communications systems:
  - air horns
  - alarm/indicator panels
  - face-to-face
  - lifeline/signalling line
  - two way radios
- Communication techniques used when entering and working in confined spaces on a vessel
- Criteria that defines a confined space
- Emergency entry and exit procedures
- Inherent and work related hazards associated with confined spaces
- Procedures and permit requirements for confined space entry
- Relevant legislative and/or regulatory framework that impacts on confined space entry
- Role of standby person/s
- Safe operational procedures for the use of self contained breathing apparatus (SCBA)
- Ventilation of confined spaces
- Work health and safety (WHS)/occupational health and safety (OHS) requirements and

work practices

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, the required skills and knowledge, the range statement and the Assessment Guidelines for the Training Package.

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

The evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the Elements, Performance Criteria, Required Skills, Required Knowledge and include:

- continuously monitoring and checking conditions and hazards when working in a confined space on a vessel
- developing effective planning documents
- taking appropriate action during an emergency
- taking actions promptly to identify, report, and/or rectify hazards and emergency situations when working in a confined space.

### **Context of and specific resources for assessment**

Performance is demonstrated consistently over time and in a suitable range of contexts.

Resources for assessment include access to:

- industry-appropriate working or training vessel or a maritime operation where confined space entry can take place
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities
- range of relevant exercises, case studies and/or other simulated practical and knowledge assessments
- appropriate range of relevant operational situations in the workplace.

In both real and simulated environments, access is required to:

- relevant and appropriate materials and equipment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.

### **Method of assessment**

Practical assessment must occur in an:

- appropriately simulated workplace environment and/or
- appropriate range of situations in the workplace.

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate to this unit:

- direct observation of the candidate working in a confined space on an operational vessel
- direct observation of the candidate applying relevant WHS/OHS requirements and work practices.

**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

In all cases where practical assessment is used it should be combined with targeted questioning to assess Required Knowledge.

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

## 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, if used in the performance criteria, is detailed below.

- |  |   |
|--|---|
| Characteristics of a confined space must include:          | <ul style="list-style-type: none"> <li>• Those described in the Occupational Health and Safety (Maritime Industry) (National Standards) Regulation and/or Australian Standard (AS/NZS) 2865 Safe working in a confined space</li> </ul>   |
| Confined spaces may include:                               | <ul style="list-style-type: none"> <li>• Ballast tanks</li> <li>• Battery lockers</li> <li>• Boilers</li> <li>• Cargo tanks/holds</li> <li>• Chain lockers</li> <li>• Cofferdams</li> <li>• Compressor rooms</li> <li>• Double bottoms</li> <li>• Duct keels</li> <li>• Engine components</li> <li>• Fuel tanks</li> <li>• Furnaces</li> <li>• Inert gas scrubber plants</li> <li>• Pump rooms</li> <li>• Sewage tanks</li> <li>• Storage areas for fixed fire extinguishing media</li> <li>• Trunking and pressure vessels</li> <li>• Void spaces</li> </ul> |
| Regulations, standards and codes of practice must include: | <ul style="list-style-type: none"> <li>• Code of Safe Working Practice for Australian Seafarers - Section 10 Entering and working in enclosed or confined spaces</li> <li>• International Safety Management (ISM) Code</li> <li>• Navigation Act 2012</li> <li>• Occupational Health and Safety (Maritime Industry) (National Standards) Regulations 2003</li> </ul>  |
| Regulations, codes of practice and standards may include:  | <ul style="list-style-type: none"> <li>• Australian Standard AS/NZS 2865 Safe working in a confined space</li> <li>• IMO Resolution A 1050 (27) Revised Recommendations for Entering Enclosed Spaces Aboard Ships</li> <li>• International Maritime Solid Bulk Cargoes Code (IMSBC Code)</li> <li>• International Safety Guide for Oil Tankers and Terminals (ISGOTT)</li> <li>• Liquefied Gas Handling Principles on Ships and in Terminals</li> </ul>   |



- (SIGTTO)
- Vessels may include:
- Shipboard confined /enclosed space entry procedures
  - Any Australian or international commercial vessel or unit
- Hazards may include:
- Cold pipes and valves (refrigeration and liquefied gases etc.)
  - Dangerous goods in packaged form
  - Electricity and wiring systems
  - Flammable or explosive atmospheres
  - Free flowing solids
  - Height
  - Hot pipes (steam, fuel oil, lubricating oils etc.)
  - Manual handling
  - Moving equipment
  - Noise
  - Oxygen deficiency or enrichment
  - Physical obstructions such as transverse frames and floors
  - Poor visibility
  - Products or processes in adjacent spaces
  - Restricted access
  - Rising liquids
  - Slippery or uneven surfaces
  - Temperature extremes
  - Toxic liquids, solids, gases, vapours and dusts
  - Vibration
- Risks may include:
- Asphyxiation
  - Contamination
  - Engulfment
  - Falling
  - Fire or explosion
- Risk control measures may include:
- Atmospheric testing
  - Barricading
  - Cleaning
  - De-energising
  - Isolation
  - Lockout
  - Purging
  - Signage
  - Tag out
  - Ventilation
- Authorised personnel may include:
- Master
  - Delegated Safety Officer
  - Chief Mate

- Permit requirements may include:
- Chief Engineer
  - 1st Engineer
  - Atmospheric testing results
  - Cold work permit
  - Communications
  - Competent person who has control of the space and the authorising officer's signature
  - Date and period of validity
  - Hazards that are likely to be present
  - Height permit
  - Hot work permit
  - Isolation checklist
  - Locations of the space
  - Need for respiratory protection
  - Personal protection clothing required
  - Personal protective equipment required
  - Person/s entering
  - Rescue arrangements and emergency equipment
  - Risk control measures
  - Standby person/s
- Ready for entry may include:
- Communications understood and tested
  - Control measures confirmed and implemented
  - Development of an appropriate plan to complete works in the space
  - Emergency plan confirmed as appropriate or modified and equipment in position at the ready
  - Method of safe entry and exit in place
  - Permit/s signed by the Responsible Officer and posted
  - Safe atmosphere confirmed (or relevant measures in place to ensure safe entry into an unsafe atmosphere)
  - Space is secured
  - Standby person/s identified and in position
- Personal protective clothing and equipment may include:
- Atmospheric monitoring equipment
  - Chemically resistant splash suits
  - Coveralls
  - Gloves
  - Harness and restraint equipment
  - Helmet
  - Respiratory protection (self rescue devices and SCBA)
  - Safety boots
  - Safety glasses or goggles
- Entry equipment may
- Anchor straps and/or anchor points

- include:
- Atmospheric testing and monitoring equipment
  - Confined space harnesses
  - Fall arrest systems equipment
  - Intrinsically safe torches/lifting
  - Lifeline/signalling line
  - Lockout kit
  - Retractable lanyard/s
  - Rope kit/winching
  - SCBA
  - Signage
  - Tripod
  - Ventilation fan and ducting
- Precautions during entry may include:
- Atmosphere must be tested prior to entry, before re-entry and at frequent intervals
  - Atmospheric monitoring must occur during occupancy
  - If conducting prolonged work activities or in extreme temperatures, regular breaks should be taken
  - If entry to unknown or unsafe atmospheres cannot be avoided the use of suitable breathing apparatus e.g. airline or self-contained should be employed
  - Occupants must be provided with calibrated and tested multi-gas detectors
  - Standby person must maintain communications with occupants and relevant personnel
  - Ventilation must continue while the space is occupied
- Role and responsibilities of standby person/s may include:
- As defined in Regulation 4.18 Part 4 of the Occupational Health and Safety (Maritime Industry) (National Standards) Regulation
- Emergency rescue equipment may include:
- Atmospheric monitoring equipment
  - Emergency escape breathing devices
  - First aid kit
  - Harnesses
  - Helmets
  - Lighting
  - Oxygen resuscitation kit
  - Rescue ropes
  - Rope recovery kit
  - SCBA
  - Stretcher
  - Tripod

## **Unit Sector(s)**

Not applicable.

## **Competency Field**

Operational Quality and Safety