



**Australian Government**

# **MARN6001A Manage cargo operations**

**Release 1**

## **MARN6001A Manage cargo operations**

### **Modification History**

Release 1

This is the first release of this unit.

### **Unit Descriptor**

This unit involves the skills and knowledge required to plan and ensure safe loading, stowage, securing and care during the voyage and unloading of cargo.

### **Application of the Unit**

This unit applies to maritime workers working in the maritime industry as a Master Unlimited.

### **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 Develop cargo plan</b>                          | <ul style="list-style-type: none"><li>1.1 <i>Cargo</i> to be loaded is identified and its characteristics and dimensions are established</li><li>1.2 Communication is conducted with terminal personnel to establish loading and unloading arrangements</li><li>1.3 <i>Information and equipment</i> is used in planning to ensure hull stress is kept within acceptable limits</li><li>1.4 <i>Cargo plan</i> is prepared according to legislative and organisational requirements</li></ul>  |
| <b>2 Oversee cargo operations</b>                    | <ul style="list-style-type: none"><li>2.1 <i>Preparations for loading</i> are monitored according to the stowage plan and organisational procedures</li><li>2.2 Regulations, procedures and instructions are interpreted to ensure that cargo is correctly identified, inspected and confirmed against documentation</li><li>2.3 Communication is maintained with crew and terminal personnel involved in cargo loading/unloading to facilitate loading/unloading</li><li>2.4 Cargo operations are managed to ensure they comply with regulations, procedures and instructions</li><li>2.5 Vessel stability is monitored during loading/unloading operations</li><li>2.6 Ballast management procedures are carried out according to organisational procedures and port authority requirements</li><li>2.7 Action is taken in the event of a <i>cargo handling incident or emergency</i> to secure the cargo and the vessel and to maintain the safety of persons involved</li><li>2.8 All <i>cargo handling documentation</i> is completed in accordance with organisational procedures and regulatory requirements</li></ul> |
| <b>3 Comply with legislation for dangerous cargo</b> | <ul style="list-style-type: none"><li>3.1 Regulations, procedures and instructions are interpreted to ensure that dangerous cargo is correctly identified, inspected and confirmed against documentation, prior to cargo operations</li><li>3.2 Information regarding the dangerous cargo is made readily available in the event of an incident</li><li>3.3 Cargo operations are managed to ensure they comply with regulations, operational and security procedures and cargo plan</li><li>3.4 Hazards associated with dangerous cargo are identified and action is</li></ul>  |

taken to minimise risk to personnel, cargo, vessel and the environment

- 3.5 Action is taken in the event of a dangerous cargo handling incident or emergency to secure the cargo and the vessel and to maintain the safety of persons involved
- 3.6 All documentation is completed according to organisational procedures and regulatory requirements

#### **4 Manage the care of cargo during the voyage**

- 4.1 Plan for the care of cargo during the voyage is prepared according to organisational and customer requirements, and relevant regulations
- 4.2 ***Cargo care operations*** are managed to ensure they comply with regulations, procedures and instructions
- 4.3 Cargo stowage and security is managed to ensure stability and stress conditions remain within safe limits at all times during the voyage
- 4.4 Extent and frequency of cargo condition monitoring is determined appropriate to its nature and prevailing conditions
- 4.5 Hazards associated with cargo stowage are identified and action is taken to minimise risk to personnel, cargo, vessel and the environment
- 4.6 Unacceptable or unforeseen variations in the condition or specification of the cargo is promptly recognised and remedial action is taken immediately to safeguard the safety of the vessel and those on board
- 4.7 All documentation is completed according to organisational procedures and regulatory requirements

#### **5 Manage emergencies related to cargo**

- 5.1 ***Initial actions*** taken on becoming aware of emergency are according to contingency plans and are appropriate to the urgency of the situation and the nature of the emergency
- 5.2 Onboard personnel are given information and instructions clearly and accurately
- 5.3 Procedures are implemented to combat emergency and protect persons on board
- 5.4 Communications are established with ***others*** to facilitate the emergency response process
- 5.5 Injured persons are provided with assistance
- 5.6 Contact is maintained with others at all times to keep them briefed on

the emergency response process

5.7 Preparation for abandoning vessel is undertaken, if required

5.8 Cessation of emergency is communicated to appropriate personnel

**6 Complete  
documentation  
related to cargo**

6.1 Correct log book entries are made relating to cargo operations and incidents according to regulatory requirements and organisational procedures

6.2 Letter of protest is completed in the event of an incident relating to cargo operations and care

6.3 Cargo reports and documentation are completed and maintained according to regulatory requirements and organisational procedures

6.4 Independent cargo surveyor reports, where applicable, are received and acknowledged

6.5 Cargo samples, where provided, are correctly documented and secured

## Required Skills and Knowledge

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

### Required Skills:

- Apply international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargo
- Conduct loading and unloading operations to ensure vessel stability, trim and stress limitations are not exceeded at any time
- Conduct and record tests and inspections of cargo handling equipment according to regulations and organisational procedures
- Correctly read and interpret drafts
- Establish procedures for safe cargo handling according to provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information
- Explain the basic principles for establishing effective communications and improving working relationships between vessel and terminal personnel
- Stow and secure cargo on board vessels
- Use all available shipboard data related to loading, care and unloading of bulk cargo
- Use draft survey methods to determine vessel displacement
- Use stability and trim diagrams, and stress-calculating equipment to keep hull stress and stability within acceptable limits at all times

### Required Knowledge:

- Application of ventilation requirements for various cargo
- Confined space entry procedures
- Dangerous goods classification, signage, stowage and segregation requirements under the IMDG Code and relevant Marine Orders
- Effect on trim and stability of cargo and cargo operations
- IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information including AMSA Marine Orders and Notices relating to cargo carriage, loading and unloading
- International regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargo
- Loading and unloading operations with special regard to the transport of cargo identified in the Code of Safe Practice for Cargo Stowage and Securing
- Loading cargo and ballasting to keep hull stress within acceptable limits
- Maintenance of survey certification required for cargo handling equipment
- Stowage and securing of cargo on board vessels including cargo-handling gear, and securing and lashing equipment

- World load line zones and associated draft limitations
- 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:

- ensuring currency of relevant regulatory and legislative knowledge
- developing effective planning documents
- providing high quality reports.

### **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-approved marine operations site where managing cargo operations can be conducted
- 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 managing cargo operations
- 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.

- |  |   |
|--|---|
| Cargo may include:                     | <ul style="list-style-type: none"><li>• Explosives</li><li>• General cargo, break bulk, unitised or in containers</li><li>• Hazardous or dangerous goods</li><li>• Heavy lifts</li><li>• Liquids in portable containers</li><li>• Livestock</li><li>• Mineral concentrates</li><li>• Refrigerated cargo</li><li>• Scrap, pig iron ingots, steel coils and sheets</li><li>• Solid bulk materials</li><li>• Timber</li></ul>  |
| Information and equipment may include: | <ul style="list-style-type: none"><li>• Automatic data-based (ADB) equipment</li><li>• Bulk Cargo Codes</li><li>• Calculations relating to drafts, deadweight, stability, trim and stress</li><li>• Cargo and lashing codes</li><li>• IMDG Code</li><li>• Knowledge of ballasting and deballasting procedures</li><li>• Relevant AMSA Marine Orders</li><li>• Requirements for loading and care of various cargo types</li><li>• Requirements for the carriage of grain and timber cargo</li><li>• Shipboard data including drawings, load limitations, safe working loads</li><li>• Stability and trim diagrams</li><li>• Stress-calculating equipment</li></ul> |
| Cargo plan must include:               | <ul style="list-style-type: none"><li>• Allocating cargo containers requiring refrigeration appropriate spaces</li><li>• Avoiding incompatible cargo stowage</li><li>• Calculations relating to stability and stress</li><li>• Ensuring cargo is evenly distributed to maintain acceptable trim at all phases of the voyage</li><li>• Ensuring the unloading sequence is effective</li><li>• Observing regulations relating to hazardous material/dangerous goods stowage</li></ul>   |
| Preparations for loading may include:  | <ul style="list-style-type: none"><li>• Checking hatch covers for water tightness</li><li>• Checking holds to ensure they are clean, dry and free of smell</li><li>• Covering bilges with tarpaulins/wrappers before loading</li></ul>  |

- if required
  - Ensuring survey certification for all cargo handling equipment is valid and cargo record book is available for inspection
  - Following confined space entry procedures where necessary
  - Inspecting access arrangements in holds to ensure they are in a safe condition
  - Reviewing supplies of dunnage, mats and cargo securing equipment to ensure sufficient are available
- Cargo handling incidents or emergencies may include:
- Cargo shift
  - Damaged cargo
  - Damaged dangerous goods and escaping cargo or fumes
  - Failure of cargo handling equipment, including lashings
  - Failure of refrigeration machinery
  - Fire in cargo spaces
  - Incorrect ventilation
  - Incorrectly stowed cargo
  - Spontaneous combustion
- Cargo handling documentation may include:
- Cargo Gear Register
  - Cargo plan
  - Letter of protest
  - Log book
  - Ship/shore safety and security checklists
  - Stability, trim and stress records
- Cargo care operations may include:
- Checking cargo lashings
  - Maintaining ventilation requirements
  - Monitoring cargo temperatures liable to spontaneous combustion
  - Monitoring refrigerated cargo temperatures
- Initial actions may include:
- Contact with relevant authorities and organisational personnel
  - Locating fire as a result of fire or smoke or fire alarms
  - Positioning vessel to minimise effects of weather and sea conditions
  - Securing cargo when safe to do so
- Others may include:
- Harbour Master
  - Organisational personnel
  - Other vessels
  - Relevant maritime safety authorities

## **Unit Sector(s)**

Not applicable.

## **Competency Field**

Not applicable.