



Australian Government

MARN006 Manage cargo operations

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package Release 3.0.

Application

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.

This unit applies to maritime workers in the maritime industry.

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

Pre-requisite Unit

Not applicable.

Competency Field

N – Seamanship

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Develop cargo plan

PERFORMANCE CRITERIA

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

- 1.1 Cargo properties and characteristics are identified and their impact on safety, the environment and vessel operations are outlined
- 1.2 Communication is conducted with terminal personnel to establish loading and unloading arrangements
- 1.3 Information and equipment is used in planning, to ensure hull stress is kept within acceptable limits
- 1.4 Cargo plan is prepared according to legislative and organisational requirements

2 Oversee cargo operations

- 2.1 Preparations for loading are monitored according to the cargo plan and organisational procedures
- 2.2 Regulations, procedures and instructions are interpreted to ensure that cargo is correctly identified, inspected and confirmed against documentation
- 2.3 Communication is maintained with crew and terminal personnel involved in cargo loading/unloading to facilitate loading/unloading
- 2.4 Cargo operations are managed to ensure they comply with regulations, procedures and instructions
- 2.5 Vessel stability is monitored during loading/unloading operations
- 2.6 Ballast management procedures are carried out according to organisational procedures and port authority requirements
- 2.7 Action is taken in a cargo handling incident or emergency to secure the cargo and the vessel and to maintain the safety of persons involved
- 2.8 All cargo handling documentation is completed according to organisational procedures and regulatory requirements

3 Comply with legislation for dangerous cargo

- 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
- 3.2 Information regarding dangerous cargo is made readily available in an incident
- 3.3 Cargo operations are managed to ensure they comply with regulations, operational and security procedures, and cargo plan
- 3.4 Safety data sheets (SDSs)/material safety data sheets (MSDSs) are accessed and interpreted to identify relevant cargo-related hazards to vessel and to personnel
- 3.5 Procedures for safety and safety management are identified and documented
- 3.6 Hazards associated with dangerous cargo are identified and action is taken to minimise risk to personnel, cargo, vessel and the environment

- 3.7 Action is taken in a dangerous cargo handling incident or emergency to secure cargo and vessel, and to maintain the safety of persons involved
- 3.8 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 On becoming aware of emergency, initial actions are taken according to contingency plans, urgency of the situation and 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 Prevent pollution of the environment

6.1 Procedures to prevent pollution are identified and observed at all times

6.2 Measures to prevent pollution during normal and emergency situations are applied according to regulatory requirements and organisational procedures

6.3 All relevant information is immediately reported to appropriate persons when a vapour leak or cloud is detected or a malfunction has occurred that poses a risk of a vapour leak or cloud

6.4 Shore-based response personnel are promptly notified when a vapour leak or cloud occurs

7 Complete documentation related to cargo

7.1 Correct logbook entries are made relating to cargo operations and incidents according to regulatory requirements and organisational procedures

7.2 Letter of protest is completed in an incident relating to cargo operations and care

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

7.4 Independent cargo surveyor reports are received and acknowledged as required

7.5 Cargo samples are correctly documented and secured as required

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.

Cargo includes one or more of the following:

- chemicals and oils
- explosives
- general cargo, break bulk, unitised or in containers
- hazardous or dangerous goods
- heavy lifts
- liquids in portable containers
- liquefied gas
- livestock
- mineral concentrates
- refrigerated cargo
- scrap, pig iron ingots, steel coils and sheets
- solid bulk materials
- timber and deck cargo

Information and equipment includes one or more of the following:

- automatic data-based (ADB) equipment
- bulk Cargo Codes
- calculations relating to drafts, deadweight, stability, trim and stress
- cargo and lashing codes
- International Maritime Dangerous Goods (IMDG) Code
- knowledge of ballasting and deballasting procedures
- relevant Australian Maritime Safety Authority (AMSA) Marine Orders
- requirements for loading and care of various cargo types
- requirements for the carriage of grain, grain stability and timber cargo
- shipboard data including drawings, load limitations, safe working loads
- stability and trim diagrams
- stress-calculating equipment

Cargo plan includes:

- allocating cargo containers requiring refrigeration appropriate spaces
- avoiding incompatible cargo stowage
- calculations relating to stability and stress
- ensuring cargo is evenly distributed to maintain acceptable trim at all phases of the voyage
- ensuring the unloading sequence is effective
- observing regulations relating to hazardous material/dangerous goods stowage

Preparations for loading include one or more of the following:

- checking hatch covers for water tightness
- checking holds to ensure they are clean, dry and free of smell
- covering bilges with tarpaulins/wrappers before loading as required
- ensuring survey certification for all cargo handling equipment is valid and cargo record book is available for inspection
- following confined space entry procedures as required
- 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 include one or more of the following:

- 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 includes one or more of the following:

- cargo gear register
- cargo plan
- letter of protest
- logbook
- ship/shore safety and security checklists
- stability, trim and stress records

Cargo care operations include one or more of the following:

- checking cargo lashings
- maintaining ventilation requirements
- monitoring cargo temperatures liable to spontaneous combustion
- monitoring refrigerated cargo temperatures

Initial actions include one or more of the following:

- contact with relevant authorities and organisational personnel
- locating fire as a result of fire, smoke or fire alarms
- positioning vessel to minimise effects of weather and sea conditions
- securing cargo when safe to do so

Unit Mapping Information

This unit replaces and is equivalent to MARN6001A Manage cargo operations.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARN006 Manage cargo operations

Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package Release 3.0.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- applying international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargo
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- communicating clearly and effectively, establishing effective communications and improving working relationships
- conducting and recording tests and inspections of cargo handling equipment according to regulations and organisational procedures
- conducting loading and unloading operations to ensure safe stowage of cargo, vessel stability, trim and stress limitations are not exceeded at any time
- correctly identifying safety data sheets (SDSs)/material safety data sheets (MSDSs), relevant cargo-related hazards to vessel and personnel, and taking appropriate action according to organisational procedures
- developing effective planning documents and providing high quality reports
- ensuring currency of relevant regulatory and legislative knowledge
- establishing procedures for safe cargo handling according to provisions of the relevant instruments such as International Maritime Dangerous Goods (IMDG) Code, International Maritime Solid Bulk Cargoes (IMSBC) Code, International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 Annexes III and V and other relevant information
- interpreting and applying knowledge of bulk ships, containers and container ships, chemical and oil tanker, and liquefied gas tanker layouts, platform supply vessels, roll on roll off carriers, cargo features, and characteristics applying available shipboard data related to loading, care and unloading of cargo
- using draft survey methods to determine cargo quantities and vessel displacement
- using stability and trim diagrams, and stress-calculating equipment to keep hull stress and stability within acceptable limits at all times
- recognising problems and hazards that can arise when managing safety on chemical and oil tankers, and liquefied gas tankers, taking appropriate remedial action and initiating appropriate solutions.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- application of ventilation requirements for various cargo
- bulk ship, chemical and oil tanker layouts, and liquefied gas tanker layouts, cargo features and characteristics
- 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
- hazards and control measures associated with bulk ship, chemical and oil tanker, liquefied gas tanker cargo operations
- IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information including Australian Maritime Safety Authority (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
- relevant firefighting operations and the use of firefighting equipment
- relevant sections of maritime regulations, codes and conventions related to chemical and oil tankers, and liquefied gas tankers
- stowage and securing of cargo on board vessels including cargo-handling gear, and securing and lashing equipment
- WHS/OHS requirements and work practices
- world load line zones and associated draft limitations.

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

Assessment must occur in workplace operational situations or where these are not available, in simulated workplace operational situations or an industry-approved marine operations site where the oversight of cargo operations can be observed.

Resources for assessment include access to:

- gas monitoring equipment including:
 - gas monitoring instruments
 - oxygen indicators
- firefighting equipment including:
 - firefighting agents
 - fixed dry chemical systems
 - fixed foam systems
 - portable foam systems
- relevant documentation including cargo handling documentation, cargo plan, workplace procedures, regulations, codes of practice and operation manuals
- tools, cargo handling equipment, piping systems and valves, and personal protective equipment currently used in industry and required for cargo operations.
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>