



Australian Government

**MARA013 Contribute to basic cargo
operations on oil and chemical tankers
(basic oil and chemical)**

Release: 1

MARA013 Contribute to basic cargo operations on oil and chemical tankers (basic oil and chemical)

Modification History

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

Application

This unit involves the skills and knowledge required to recognise hazards associated with oil and chemical tankers and apply appropriate hazard control measures to ensure safe cargo operation. It applies to Seafarers required to assist in the basic cargo operations on oil and chemical tankers (basic oil and chemical).

This unit applies to people working in the maritime industry in the capacity of:

- Chief Mate
- Deck Officers
- Engineering Officers
- Engineers
- Masters
- Ratings.

Licensing/Regulatory Information

This unit is equivalent to and delivers the objectives of the following STCW provisions:

- STCW Reg V/1-1 and Code Section A-V/1-1 (1 & 2), Table A-V/1-1-1.

Legislative and regulatory requirements are applicable to this unit.

- This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as Chief Mate, Deck Officers, Engineering Officers, Engineers, Masters and Ratings for basic operations on oil and chemical tankers and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
- Those regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Pre-requisite Unit

Not applicable.

Competency Field

A – Handling Cargo and Vessel Stability

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Recognise characteristics of tanker cargo and tankers to ensure the safe transfer and transport of cargo

1.1 Features of various types of oil and chemical tankers are outlined

1.2 Cargo operations of tankers are identified

1.3 Properties of cargo being transported are identified and their impact on safety, the environment and vessel operations is recognised

1.4 Hazards associated with the transport of cargo are clarified according to emergency response documentation

1.5 Hazard controls associated with tanker cargo are employed according to organisational procedures

2 Comply with legislative and organisational requirements for safe transfer and transport of tanker cargo

2.1 Safety data sheets (SDS)/material safety data sheets (MSDS) relevant to cargo are accessed and procedures for tanker safety and safety management are identified

2.2 SDS/MSDS are interpreted to identify relevant cargo-related hazards to the vessel and to personnel

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| | 2.3 | Legislative and organisational requirements are interpreted to identify appropriate actions for safe transfer and transport of cargo |
| 3 | Take precautions to prevent hazards | |
| | 3.1 | Organisational policies and procedures to minimise hazards are identified |
| | 3.2 | Type and severity of hazard posed by cargo is recognised |
| | 3.3 | Transfer and transport of cargo is monitored to prevent hazards |
| | 3.4 | Monitoring equipment, where installed, is regularly inspected and used according to organisational procedures |
| 4 | Recognise hazardous situation | |
| | 4.1 | Source of hazard is identified according to organisational procedures |
| | 4.2 | Risk is assessed considering severity and likelihood of consequences |
| | 4.3 | Control measures to minimise risk are implemented to level of responsibility or referred to appropriate person for permission or further action |
| | 4.4 | Containment procedures are applied, where appropriate |
| | 4.5 | Appropriate safety procedures are followed and personal protective equipment (PPE) is used according to organisational procedures |
| | 4.6 | Risk is eliminated where possible, and if not practical, actions are taken to control risk |
| | 4.7 | Appropriate firefighting equipment is identified to carry out firefighting operations |
| 5 | Take precautions to prevent pollution of the environment from the release of oil or chemicals | |
| | 5.1 | Procedures to prevent pollution are identified and observed at all times |
| | 5.2 | Measures to prevent pollution during normal and emergency situations are applied according to regulatory requirements and organisational procedures |

- 5.3 All relevant information is immediately reported to appropriate persons when a spill is detected or a malfunction has occurred that poses a risk of a spill
- 5.4 All required spill containment procedures are correctly implemented according to regulatory requirements and 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.

Unit Mapping Information

This unit replaces and is equivalent to MARA002 Contribute to safe cargo operations on oil and chemical tankers.

Links

Companion Volume implementation guide can be found in VetNet -

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

Assessment Requirements for MARA013 Contribute to basic cargo operations on oil and chemical tankers (basic oil and chemical)

Modification History

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

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 one occasion and include:

- assisting in implementing shipboard spill containment procedures
- applying cargo operations, including:
 - cargo handling equipment
 - loading, unloading and care in transit
 - piping systems and valves
 - tank cleaning, purging, gas-freeing and inerting
- communicating clearly and effectively
- correctly identifying safety data sheets (SDS)/material safety data sheets (MSDS), relevant cargo-related hazards to vessel and to personnel, and taking appropriate actions
- ensuring cargo operations are carried out according to accepted principles and procedures to ensure safety of operations
- identifying and acting on hazardous situations
- interpreting and applying knowledge of tanker layouts, tanker cargo features, characteristics and hazards, and related hazard prevention strategies to duties on various types of tankers and gas carriers
- reading and interpreting SDS/MSDS
- recognising problems and hazards that can arise when managing safety on a tanker, taking appropriate remedial action and initiating appropriate solutions
- reporting relevant information to the responsible person.

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:

- actions to be taken in the event of spillage
- alarms
- ballast voyage
- cargo and pumps
- cargo heating systems
- cargo measurement systems
- crude oil washing
- effects of oil and chemical pollution on human and marine life
- electrical safety precautions
- emergency procedures and emergency shutdown (ESD)
- features and characteristics of oil and chemical tankers
- features and characteristics of various types of tanker cargo
- firefighting agents used to extinguish oil and chemical fires
- firefighting systems on tankers, including:
 - firefighting agents
 - fixed dry chemical systems
 - fixed foam systems
 - portable foam systems
- fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk
- functions and processes for the calibration of various types of measuring instruments and devices used to test environments on tankers and gas carriers
- general arrangement and construction of tankers
- hazard control procedures on oil and chemical tankers
- hazards and control measures associated with tanker cargo operations
- hazards associated with:
 - carriage of bulk liquids and chemicals
 - tanker operations
- hazards to the environment
- inert gas systems
- information on SDS/MSDS
- loading and unloading
- measures to be taken in the event of spillage
- oil and chemical tanker fire response organisation and actions to be taken, including in the event of spillage
- physical properties of oil and chemicals, including:
 - chemical symbols
 - pressure and temperature, including vapour
 - pressure/temperature relationship

- types of electrostatic charge generation
- piping systems and valves
- precautions to be taken before and during repair and maintenance work
- precautions to be taken when entering into enclosed spaces
- principles of chemistry as they relate to tanker operations
- procedures for the safe use of personal protective equipment (PPE), including:
 - breathing apparatus
 - resuscitators
- procedures to prevent air and water pollution
- safety measures for hot and cold work
- ship to shore safety checklists
- shipboard pollution prevention plans, including:
 - shipboard procedures to prevent pollution and spill-containment procedures
 - Shipboard Oil Pollution Emergency Plan (SOPEP)
 - Shipboard Marine Pollution Emergency Plan (SMPEP) for noxious liquid substances (NLS)
- slops and slops disposal
- tanker cleaning, purging, gas-freeing and inerting
- tanker safety culture and safety management
- types of hazards and hazard controls, including:
 - anti-static measures
 - atmospheric control
 - cargo inhibition
 - corrosion
 - electrostatic
 - environmental
 - explosions and flammability
 - gas testing
 - health hazards
 - importance of cargo compatibility
 - inerting, drying and monitoring techniques
 - oxygen deficiency
 - reactivity
 - segregation
 - sources of ignition
 - toxicity
 - vapour leaks and clouds
 - ventilation
- tank evacuating (rescue and escape) equipment
- terminology relating to the structure capacities and operations of various types of tankers and gas carriers

- types of oil and chemical tankers
- use of SDS/MSDS to provide first aid
- work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements and work practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

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.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- applicable documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry, including:
 - firefighting agents
 - fixed dry chemical systems
 - fixed foam systems
 - portable foam systems.

Links

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