



Australian Government

MARA001 Contribute to safe cargo operations on liquefied gas tankers

Release: 1

MARA001 Contribute to safe cargo operations on liquefied gas tankers

Modification History

Release 1. New unit of competency.

Application

This unit involves the skills and knowledge required to recognise hazards associated with liquefied gas tankers and to apply appropriate hazard control measures to ensure safe cargo operation.

This unit applies to seafarers required to assist in the safe operation of a liquefied gas tanker.

This unit has links to legislative and certification requirements.

Pre-requisite Unit

Not applicable.

Competency Field

A – Handling Cargo and Vessel Stability

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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

- 1.1 Features of various types of liquefied gas 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 are outlined
- 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

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| 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 |
| | | 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 the hazard posed by cargo is recognised |
| | | 3.3 | Transfer and transport of cargo is monitored to prevent hazards |
| | | 3.4 | Gas monitoring equipment is regularly inspected and used according to organisational procedures |
| 4 | Act on becoming aware of a 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 further action |
| | | 4.4 | Containment procedures are applied where appropriate |
| | | 4.5 | Appropriate safety procedures are followed and personal protective equipment is used according to organisational procedures |
| | | 4.6 | Risk is eliminated where possible, and if not practical, actions are taken to control risk |
| 5 | Take precautions to prevent pollution of the environment from release of liquefied gases | 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 vapour leak or cloud is detected |

or a malfunction has occurred that poses a risk of a vapour leak or cloud

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

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of Conditions

Specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

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

Cargo operations must include:

- cargo handling equipment
- emergency shut-down system (ESS)
- loading, unloading and care in transit
- piping systems and valves
- tank cleaning, purging, gas-freeing and inerting

Properties must include:

- chemical symbols
- pressure and temperature including vapour pressure/temperature relationship
- types of electrostatic charge generation

Cargo must include:

- ammonia
- butadiene
- ethylene
- liquefied natural gas (LNG)
- liquefied petroleum gas (LPG)

- propylene
- vinyl chloride

Hazards must include:

- corrosion hazards
- electrostatic hazards
- environmental hazards
- explosion and flammability hazards
- extremely low temperatures
- health hazards
- pressure hazards
- reactivity hazards
- sources of ignition
- toxicity hazards
- vapour leaks and clouds

Hazard controls must include:

- anti-static measures
- atmospheric control
- cargo inhibition
- gas testing
- importance of cargo compatibility
- inerting, drying and monitoring techniques
- segregation
- ventilation

Gas monitoring equipment must include:

- gas monitoring instruments
- oxygen indicators

Firefighting equipment must include:

- firefighting agents
- fixed dry chemical systems
- fixed foam systems
- portable foam systems

Measures must include:

- assisting in implementing shipboard spill containment procedures
- reporting relevant information to the responsible person

Unit Mapping Information

This is a new unit. This unit is equivalent to MARA3001A Contribute to safe cargo operations on liquefied gas tankers.

Links

Companion Volume implementation guides are found in VETNet -

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