



Australian Government

Department of Education, Employment and Workplace Relations

TDMMA607B MANAGE PROCEDURES FOR THE HANDLING, LOADING AND DISCHARGING OF OIL CARGOES

Release: 1

TDMMA607B MANAGE PROCEDURES FOR THE HANDLING, LOADING AND DISCHARGING OF OIL CARGOES

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required to safely manage procedures for the handling, loading and discharging of oil cargoes on oil tankers, including completion of required cargo calculations, development and implementation of oil cargo loading and discharging plans and procedures (both vessel-to-shore and vessel-to-vessel), completion of crude oil washing and tank cleaning operations, use and maintenance of inert atmospheres, correct use of gas detecting and safety equipment, following proper ballasting and deballasting procedures, and implementing water pollution prevention measures.

Application of the Unit

Application of the unit	The unit has application within a supplementary Statement of Attainment for competencies required by a Master or Chief Mate on an oil tanker.
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of STCW 95, the International Ship and Port Facility Security (ISPS) Code and Marine Orders under the Australian Navigation Act 1912.
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Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.</i>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
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1 Plan the loading, discharge and condition maintenance of oil cargo	- a Plans for the loading, discharge and condition maintenance of oil cargoes are obtained or prepared in accordance with company procedures, tanker's ISM Code safety management system, regulatory requirements and established maritime practice. - b Checklists for use in the loading, discharge and condition maintenance of oil cargoes are obtained or developed. - c Operational plans and procedures for the loading, discharge, vessel-to-vessel transfer, and monitoring and maintenance of oil cargoes are documented and made available to relevant staff in accordance with tanker procedures and regulatory requirements.

ELEMENT	PERFORMANCE CRITERIA
2 Manage the loading, discharge and condition maintenance of oil cargo	a Operational plans and procedures for the loading, discharge, vessel-to-vessel transfer, and condition maintenance of oil cargoes are implemented in accordance with operational and regulatory requirements

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ELEMENT	PERFORMANCE CRITERIA
2 Manage the loading, discharge and condition maintenance of oil cargo (continued)	b Personnel involved in oil operations are correctly supervised in accordance with company and regulatory requirements c Oil cargo vessel-to-vessel transfer procedures are correctly carried out in accordance with operational and regulatory requirements d Checklists are correctly used in accordance with tanker procedures e Oil cargo is correctly monitored and maintained in accordance with established procedures and oil tanker practice f Oil cargo sampling and testing is carried out in accordance with established tanker procedures and regulatory requirements g Established procedures and precautions are applied during tank cleaning operations h Load-on-top, ballasting and deballasting procedures for an oil tanker are followed in accordance with operational requirements, established oil tanker practice and regulatory requirements i Required communication with relevant personnel is correctly and constantly maintained throughout loading, discharging, handling and condition maintenance operations involving oil cargo

ELEMENT	PERFORMANCE CRITERIA
3 Ensure the implementation of safety and hazard control procedures	- a Appropriate personal protection clothing and equipment is correctly used throughout loading, discharge, handling and condition maintenance operations involving oil cargo - b Hazard minimisation and safety precautions for the loading, discharging and handling of oil products are carried out in accordance with regulatory requirements and established oil tanker practice - c Appropriate monitoring equipment is correctly used throughout loading, discharge, handling and condition maintenance operations - d Emergency situations during loading or discharging of cargo or cargo condition monitoring and maintenance are identified and acted upon in accordance with established tanker emergency procedures and regulatory requirements
4 Implement pollution prevention measures	- a Air and water pollution prevention procedures are implemented in accordance with established tanker practice and regulatory requirements - b Required action is taken in the event of an oil spillage in accordance with regulatory requirements and established oil tanker procedures - c All relevant information is immediately reported to appropriate officials when a spill is detected or when a malfunction has occurred which may pose a risk of a spill

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ELEMENT	PERFORMANCE CRITERIA
4 Implement pollution prevention measures	- d Shore-based personnel are immediately notified of an oil spill - e Shipboard spill containment and emergency procedures are

ELEMENT	PERFORMANCE CRITERIA
(continued)	initiated in accordance with established tanker practice and regulatory requirements
5 Complete cargo handling documentation	- a Correct reports are completed relating to oil cargo handling operations and incidents in accordance with established procedures and regulatory requirements - b All cargo handling documentation is completed in accordance with requirements and regulations

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Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant sections of IMO STCW 95 Code and AMSA Marine Orders applicable to oil tankers
- 2 Relevant OH&S and pollution control legislation, codes of practice, policies and procedures
- 3 The basic principles and trends in oil tanker design and cargo containment and handling systems:
 - a typical piping and pumping arrangements
 - b typical deck arrangements
 - c cargo tank arrangements
 - d types of cargo pumps and their application to various types of oil and petroleum cargo
 - e tank cleaning, gas freeing and inerting systems
 - f the major components of an inert gas plant

REQUIRED SKILLS AND KNOWLEDGE

- g cargo tank venting and accommodation ventilation systems and procedures
- h the requirements of shipboard gauging systems and their associated instrumentation and alarms
- i the requirements for cargo heating systems on oil tankers
- j the safety aspects of electrical systems on oil tankers
- 4 Procedures and regulatory requirements for loading, discharge, handling and condition monitoring of oil cargo, including:
 - a cargo loading and discharging preparations and procedures
 - b loading and discharge plans for multiple grade tanker cargoes with due regard to cargo segregation and cargo care on passage
 - c loading and discharging procedures, including vessel-to-vessel transfers
 - d the use of checklists, including the vessel/shore checklist
 - e the importance of correct supervision and use of monitoring equipment
 - f procedures for tank cleaning and gas freeing operations
 - g crude oil washing procedures
 - h the use and maintenance of inert gas atmospheres during cargo handling operations and its role in the gas freeing process
 - i regulations and procedures for the control of entry into pump rooms and confined spaces
 - j the principles of operation of gas detection equipment
 - k appropriate gas detection equipment for given shipboard scenarios
 - l the use of load-on-top technique

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- m proper ballasting and deballasting procedures
- n procedures to prevent air and water pollution, including disposals of wastes

- m proper ballasting and deballasting procedures and washings
 - o emergency procedures, i.e. pre-planned action in the event of leaks, fire, collision, stranding, emergency cargo discharge and personnel casualty
- 5 Oil cargo handling systems and equipment and the procedures for their use
- 6 The chemical and physical characteristics of oil cargoes, including:
 - a the basic chemistry of hydrocarbons and simple chemical reactions
 - b the physical characteristics of various types of oil cargoes
 - c the practical significance of flashpoint, flammable range and auto-ignition temperature
- 7 The hazards associated with oil cargoes, including:
 - a an understanding of the types of hazards and their causes
 - b safety and hazard minimisation procedures used on oil tankers
 - c the sources of ignition that may be present on tankers
 - d the principles of electrostatic generation and the possible situations which might lead to a discharge aboard a tanker
 - e the design features of the vessels which minimise or eliminate the major hazards
 - f the health hazards of oil cargoes and the means to prevent safety incidents
- 8 Principles and procedures for emergency operations on an oil tanker, including:
 - a the importance of developing tanker emergency plans
 - b techniques for emergency shut down of cargo operations
 - c actions to be taken in the event of failure of services essential to oil cargo
 - d actions to be taken following a collision, grounding or spillage, including a vapour release from an oil tanker
 - e the correct procedures for the use of breathing apparatus, escape equipment, resuscitation equipment, rescue equipment, decontamination equipment and protective clothing and equipment
 - f the procedures for entry into and effecting a rescue from enclosed spaces

m proper ballasting and deballasting procedures

- 9 Maritime communication techniques as they are applied in the loading, discharge, handling and condition monitoring of oil cargo

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REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Read and interpret instructions, regulations, procedures and information relevant to the management of the handling, loading and discharging of oil cargoes
- 2 Communicate effectively with others when managing the handling, loading and discharging of oil cargoes
- 3 Provide leadership to others on matters related to the handling, loading and discharging of oil cargoes
- 4 Take appropriate initiatives related to the handling, loading and discharging of oil cargoes
- 5 Interpret and apply security and safety practices and regulations when managing the handling, loading and discharging of oil cargoes
- 6 Modify activities dependent on differing workplace contingencies, risk situations and environments
- 7 Identify and solve problems associated with the handling, loading and discharging of oil cargoes and take appropriate action based on available information
- 8 Monitor and anticipate problems and risks related to the handling, loading and discharging of oil cargoes, and take appropriate action
- 9 Adapt to differing types of vessels, port facilities, cargoes and equipment
- 10 Monitor the use of equipment required for the handling, loading and discharging of oil cargoes

Evidence Guide

Evidence Guide

TDMMA607B MANAGE PROCEDURES FOR THE HANDLING, LOADING AND DISCHARGING OF OIL CARGOES

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: - a Manage the safe loading, discharge, handling and condition maintenance of cargo on an oil tanker - b Ensure all required safety and hazard control procedures are implemented during loading, discharge, handling and condition maintenance operations - c Identify typical problems that may occur during oil cargo loading, discharge, handling and condition maintenance operations and take appropriate action - d Identify emergency situations that may arise during oil operations and take appropriate action - e Apply relevant international conventions, IMO and national codes, tanker safety guides and port regulations related to oil tanker cargo operations - f Communicate effectively with others during chemical cargo handling and maintenance operations
2 Evidence required for demonstration of consistent performance	- a Performance is demonstrated consistently over a period of time and in a suitable range of contexts - b Consistently applies underpinning knowledge and skills when: 1 managing the safe loading, discharge, handling and condition maintenance of cargo on an oil tanker 2 identifying and evaluating oil cargo handling problems and determining appropriate courses of action 3 identifying and implementing improvements to oil cargo handling procedures

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| | <p>4 applying safety and hazard controls relevant to oil cargo handling operations</p> <p>c Shows evidence of application of relevant workplace procedures, including:</p> <p>1 relevant sections of maritime regulations</p> <p>2 OH&S regulations and hazard prevention policies and procedures</p> <p>3 ISM Code safety management system procedures and work instructions on the conduct of maintenance on liquefied gas tankers</p> <p>4 relevant manufacturer's guidelines relating to the use of oil cargo handling plant and equipment</p> |
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Evidence Guide (continued)

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2 Evidence required for demonstration of consistent performance (continued)

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| | <p>5 following on-board housekeeping processes</p> <p>6 pollution management processes</p> <p>d Action is taken promptly to report and/or rectify operational accidents and incidents in accordance with statutory requirements and company procedures</p> <p>e Work is completed systematically with required attention to detail</p> <p>f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others</p> |
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3 Context of assessment

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| | <p>a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations</p> <p>b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation:</p> |
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	1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and 2 Appropriate practical assessment must occur: - i at the registered training organisation; and/or - ii on an appropriate working or training vessel
4 Specific resources required for assessment	Access is required to opportunities to: - a participate in a range of practical exercises, case studies and/or other exercises that demonstrate the skills and knowledge to manage the safe loading, discharge, handling and condition maintenance of cargo on an oil tanker; and/or - b manage the safe loading, discharge, handling and condition maintenance of cargo on board an operational oil tanker

Range Statement

Range Statement

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The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

VARIABLE

SCOPE

1. GENERAL CONTEXT

a. Work must be carried out:	1 in compliance with the relevant sections of the AMSA Marine Orders and IMO STCW 95 Convention and Code, ISM Code, tanker safety guides and port regulations related to oil tanker cargo operations

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

b. Work is performed:	1 relatively independently under broad operational requirements, with accountability and responsibility for self and others in achieving the prescribed outcomes
c. Work involves:	1 the application of a significant range of operational and supervisory principles and procedures, safety precautions and hazard minimisation strategies to the management of the loading, discharge, handling and condition maintenance of cargo on an oil tanker. Contribution to the development of a broad plan for oil cargo handling, monitoring and maintenance operations is required and accountability and responsibility for self and others in achieving the outcomes is involved
d. Work requires:	1 significant judgement in planning, technical and leadership functions related to the handling, monitoring and maintenance of cargo on an oil tanker

2. WORKSITE ENVIRONMENT

a Vessel may include:	1 any Australian or international oil tanker
b Oil cargo handling operations may be carried out:	1 by day or night in both normal and emergency situations 2 under any possible operational conditions 3 during loading and discharging of cargo 4 during ballasting and deballasting 5 during tank cleaning

Range Statement (continued)

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VARIABLE	SCOPE
b Oil cargo handling operations may be carried out:	6 during crude oil washing procedures 7 during oil cargo monitoring and maintenance 8 during oil cargo sampling
c Operational cargo handling cycle of an oil tanker may include:	1 oil loading preparation and operations 2 load-on-top operations 3 monitoring and maintenance operations during a loaded voyage 4 oil discharging preparation and operations 5 tank stripping and cleaning operations 6 ballasting operations 7 maintenance operations during a ballast voyage 8 deballasting operations
d Oil cargo handling systems and equipment may include:	1 pumps and pumping arrangements, venting and vapour-return systems, piping systems and valves 2 filters and strainers 3 expansion devices 4 flame screens 5 commonly used inert gases 6 storage, generation and distribution systems

VARIABLE	SCOPE
	7 temperature and pressure monitoring systems 8 inert gas systems 9 gas freeing systems 10 cargo gauging, instrumentation systems and alarms 11 gas detection and monitoring systems
e Personal protection clothing and equipment may include:	1 masks and goggles 2 breathing apparatus

Range Statement (continued)

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VARIABLE	SCOPE
e Personal protection clothing and equipment may include: (continued)	3 resuscitation equipment 4 protective clothing, including headgear, gloves and footwear 5 escape and rescue equipment
f Hazards associated with oil cargoes may include:	1 sources of ignition leading to explosion and fire 2 electrostatic generation leading to discharge 3 environmental hazards to air and water 4 reactivity hazards, including effects of self-reaction, temperature and effects of air, water, impurities and other chemicals and reagents 5 spills or release of toxic fluids, vapours and gases involving

VARIABLE	SCOPE
	skin contact or inhalation 6 corrosion hazards to personnel, vessel structures and equipment 7 working in confined spaces
g Documentation and records may include:	1 ISM Code safety management system plans, procedures, checklists and instructions 2 operational orders 3 established tanker and company oil cargo operations procedures 4 sections of the AMSA Marine Orders and the IMO STCW Convention and Code related to oil tankers 5 International Safety Guide for Oil Tankers and Terminals, ICS/OCIMF 6 Ship to Ship Transfer Guide (Petroleum) ICS/OCIMF 7 Clean Seas Guide for Oil Tankers (Retention of Oil Residues on Board) ICS/OCIMF 8 material safety data sheets 9 tanker manufacturer's instructions and recommended procedures 10 OH&S procedures relevant to the handling of oil cargoes 11 instructions of relevant maritime authorities concerning oil cargo operations 12 relevant Australian and international standards

Range Statement (continued)

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VARIABLE	SCOPE								
h Applicable legislation, regulations and codes may include:	<table><tr><td>1</td><td>sections of the IMO STCW 95 Convention and Code related to oil tankers, including the International Ship and Port Facility Security (ISPS) Code</td></tr><tr><td>2</td><td>relevant sections of AMSA Marine Orders</td></tr><tr><td>3</td><td>instructions of relevant maritime authorities concerning oil cargo operations</td></tr><tr><td>4</td><td>relevant OH&S and pollution control legislation</td></tr></table>	1	sections of the IMO STCW 95 Convention and Code related to oil tankers, including the International Ship and Port Facility Security (ISPS) Code	2	relevant sections of AMSA Marine Orders	3	instructions of relevant maritime authorities concerning oil cargo operations	4	relevant OH&S and pollution control legislation
1	sections of the IMO STCW 95 Convention and Code related to oil tankers, including the International Ship and Port Facility Security (ISPS) Code								
2	relevant sections of AMSA Marine Orders								
3	instructions of relevant maritime authorities concerning oil cargo operations								
4	relevant OH&S and pollution control legislation								

Unit Sector(s)

Not applicable.

Field

Field MA Handling Cargo and Vessel Stability

Relationship to other units

Relationship to other units	The unit may be assessed in conjunction with the unit <i>TDMMF1601B Plan and implement special safety, maintenance and emergency procedures for oil tankers.</i>
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