



Australian Government

Department of Education, Employment and Workplace Relations

TDMMR5407B CARRY OUT REFUELLING AND FUEL TRANSFER OPERATIONS

Revision Number: 1

TDMMR5407B CARRY OUT REFUELLING AND FUEL TRANSFER OPERATIONS

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required to supervise or carry out routine refuelling and fuel transfer operations as per relevant sections of Part D of the National Standard for Commercial Vessels (NSCV). The commercial vessel should be considered as operating within the coastal environment and include the transfer of fuel from one vessel to another while at sea.

Application of the Unit

Application of the unit	The unit has applications in the qualification for Coxswain, Master 5 and Marine Engine Drivers Grades 1, 2 and 3 as per relevant sections of Part D of the National Standard for Commercial Vessels (NSCV), i.e. Certificate II in Transport&Distribution (Coastal Maritime Operations - Master Class 5), Certificate III in Transport&Distribution (Coastal Maritime Operations - Master Class 4), Certificate II, in Transport&Distribution (Marine Engine Driving - Grade 3), Certificate III in Transport&Distribution (Marine Engine Driving - Grade 2) and Certificate IV in Transport&Distribution (Marine Engine Driving - Grade 1).
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of State and Territory maritime regulations and NSCV/USL Code for Coxswain, Master 5 and Marine Engine Drivers Grades 1, 2 and 3 on commercial vessels operating in coastal waters.
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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
1 Plan refuelling or fuel transfer operation	- a Refuelling and fuel transfer planning activities are carried out as per procedures - b The amount and positioning of the fuel on board the receiving vessel are calculated using established methods - c The impacts of refuelling on stability and the safety of the vessel are determined and taken into account - d Appropriate action is taken to ensure that all required safety equipment is available, including emergency response stores

ELEMENT	PERFORMANCE CRITERIA
2 Prepare vessel for refuelling or fuel transfer operations	a Pre-refuelling or pre-fuel-transfer activities and precautions are carried out as per established procedures and regulatory requirements
ELEMENT	PERFORMANCE CRITERIA
3 Complete refuelling or fuel transfer	a Refuelling or fuel transfer process is carried out in accordance with established procedures b Appropriate action is taken to ensure that communications are maintained between all persons involved in the refuelling or fuel transfer operation c The safety boundary is maintained for the full duration of the operation
4 Respond to emergency situation	a An appropriate response is made to an emergency situation in accordance with established emergency and practised procedures. b Safety zone is closed off and isolated in accordance with emergency procedures and regulatory requirements c All persons within the safety zone are correctly notified and their activities managed to ensure safety in accordance with emergency procedures and regulatory requirements d Appropriate authorities are notified and actions taken as directed in accordance with emergency procedures and regulatory requirements

Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant OH&S and pollution control legislation and policies
- 2 Refuelling and fuel transfer procedures applying to commercial coastal vessels between 10 and 35 m
- 3 Functions and responsibilities of crew members during refuelling and fuel transfer operations
- 4 Hazards and related safety precautions to be observed during refuelling and fuel transfer operations
- 5 Key information related to special hazards, precautions and related procedures applicable during refuelling or fuel transfer, including:
 - a tank layouts and valve and pipe systems
 - b physical properties of fuels, gases
 - c causes of explosions and related preventative measures
 - d hazards associated with refuelling and fuel transfer and related hazard control methods
 - e procedures and policies for the use of personal protection clothing and equipment (PPE)
 - f procedures for the use of escape/evacuation equipment
 - g procedures for the prevention of air and water pollution
 - h procedures to be taken in the event of an accidental fuel spillage

REQUIRED KNOWLEDGE

- 6 Basic environmental protection measures to be applied during refuelling or fuel transfer operations
- 7 Communication techniques and equipment used during refuelling or fuel transfer operations
- 8 Procedures for working in confined spaces on a vessel

REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Use basic verbal communication skills required during refuelling and fuel transfer operations
- 2 Read, interpret and apply simple instructions and safety precautions related to refuelling and fuel transfer operations
- 3 Complete any required records
- 4 Work safely and collaboratively with others during refuelling and fuel transfer operations
- 5 Select and use relevant equipment required for refuelling and fuel transfer operations as per instructions
- 6 Take appropriate action in the event of an accidental fuel spillage or safety incident during refuelling and fuel transfer operations
- 7 React appropriately to changed conditions during a refuelling and fuel transfer operation
- 8 Recognise faulty equipment and take appropriate action as per operating instructions
- 9 Recognise problems and hazards during refuelling/fuel transfer operations and take appropriate action
- 10 Adapt to changes in equipment and procedures in the workplace
- 11 Follow required work schedule as per company requirements
- 12 Measure tank levels
- 13 Identify tank filling and venting pipes

Evidence Guide

Evidence Guide

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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 Plan for and apply all required safety, environmental and hazard control precautions and procedures during refuelling and fuel transfer operations - b Communicate effectively with others involved with refuelling and fuel transfer operations - c React appropriately to changed conditions during a refuelling and fuel transfer operation
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 carrying out vessel refuelling from a variety of sources such as wharf tanks, bunker barges, road tanker and mother vessels 2 transferring fuel within the vessel 3 transferring fuel from one vessel to another 4 exercising all required safety, environmental and hazard control precautions and procedures refuelling and fuel transfer operations 5 communicating effectively with others during refuelling and fuel transfer operations

Evidence Guide

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- c Shows evidence of application of relevant workplace procedures, including:
 - 1 vessel's safety management procedures
 - 2 OH&S regulations and hazard prevention policies and procedures
 - 3 standard operating procedures and work instructions
- d Action is taken promptly to react to operational incidents and problems in accordance with established procedures
- e Work is completed systematically with required attention to detail
- f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others

Evidence Guide (continued)

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Context of 3 assessment

- a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations
- b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation:
 - 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

Evidence Guide (continued)

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4 Specific resources required for assessment

- Access is required to opportunities to:
- a demonstrate the ability to supervise refuelling and fuel transfer operations on board a vessel and between vessels through appropriate case studies, practical exercises and simulated situations; and/or
 - b supervise refuelling and fuel transfer operations on board an operational commercial or training vessel

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 State and Territory marine regulations and the National Standard for Commercial Vessels
b. Work is performed:	1 as the engineer accountable and responsible in achieving the prescribed outcomes

Range Statement**TDMMR5407B CARRY OUT REFUELLING AND FUEL TRANSFER OPERATIONS**

- c. Work involves:**
- 1 the application of established procedures and techniques to the refuelling or fuel transfer tasks

2. WORKSITE ENVIRONMENT

a Vessel may include:	1 any commercial coastal vessel up to 1,500 kW propulsion power
b Refuelling or fuel transfer tasks may include:	1 carrying out pre-refuelling activities 2 generating a checklist for refuelling activities 3 routine refuelling activities 4 containment of spills 5 emergency response 6 carrying out post-refuelling activities 7 measuring tank levels and contents
c Pre-refuelling or fuel transfer activities and precautions may include but are not limited to:	1 all persons involved with refuelling or fuel transfer are properly briefed as to their function and responsibility 2 deployment of spill prevention systems as per standard operating procedures and regulatory requirements and appropriate signage deployed 3 establishment of a safety boundary for the refuelling process in accordance with established procedures and regulatory requirements

Range Statement (continued)**TDMMR5407B CARRY OUT REFUELLING AND FUEL TRANSFER OPERATIONS**

VARIABLE	SCOPE
c Pre-refuelling or fuel transfer activities and precautions may include but are not limited to: (continued)	4 confirmation that all equipment required for an emergency response is immediately available 5 communication channels are open and ready for access 6 required emergency response training and awareness has been completed
d Operational hazards for refuelling or fuel transfer operations 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 spills or release of vapours and gases, involving skin contact and inhalation 5 working within confined spaces
e Sources of information and documentation may include:	1 safety management system plans, procedures, checklists and instructions 2 vessel and company procedures
f Applicable regulations and legislation may include:	1 State and Territory marine regulations related to the operation of small vessels 2 relevant sections of the National Standard for Commercial Vessels

Range Statement (continued)

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| 3 | relevant international, Commonwealth, State and Territory OH&S and pollution control legislation |
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Unit Sector(s)

Not applicable.

Field

Field MF Carry Out Operations on Equipment and Systems

Relationship to other units

Relationship to other units	The unit may be assessed in conjunction with other units that relate to the functions of the occupation(s) concerned.
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