Australian Government

Department of Education, Employment and Workplace Relations

TDMMF507C DEVELOP EMERGENCY AND DAMAGE CONTROL PLANS AND HANDLE EMERGENCY SITUATIONS ON BOARD A VESSEL

Release: 1

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Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:
This unit involves the skills and knowledge required to contribute to the development of emergency and damage control plans and handling of emergency situations on a commercial vessel, including the preparation of contingency plans for emergencies and damage control, procedures for fire prevention, detection and extinguishment and the establishment and implementation of lifesaving procedures, including the use of various lifesaving appliances.

Application of the Unit

Application of the unit	The unit applies to qualifications for masters and engineers in command and watchkeeping positions on ocean-going vessels and Engineer Class 3 in near coastal operations, (i.e. Advanced Diploma of Transport&Distribution(Maritime Operations - Master Unlimited), Advanced Diploma of Transport&Distribution(Marine Engineering Class 1), Advanced Diploma of Transport&Distribution(Marine Engineering Class 2), Diploma of Transport&Distribution(Marine Engineering - Engineer Watchkeeper), Diploma of Transport&Distribution(Coastal Marine Engineering - Engineer Class 3).

Licensing/Regulatory Information

Licensing/legislative requirements	Relevant maritime regulations, including Commonwealth, State and Territory regulations and pertinent international conventions and codes, including IMO STCW 95 Code, SOLAS Convention and the International Ship and Port Facility Security (ISPS) Code.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

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

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
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1 Prepare contingency plans for emergency response	a Potential emergency situations are identified in conjunction with relevant shipboard personnel b Plans of action are developed by the master and chief engineer with appropriate assistance from other personnel detailing procedures for responding to potential emergency situations as per regulatory requirements and company procedures c Resources are organised in readiness for potential implementation of emergency and security contingency plans d Contingency plans for dealing with emergency response are documented in accordance with company procedures and regulatory requirements

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ELEMENT	PERFORMANCE CRITERIA
1 Prepare contingency plans for emergency response (**continued**)	e Shipboard officers and crew are made aware of contingency plans for emergency response f Drills are carried out at appropriate times to test the readiness of shipboard personnel to implement emergency and security contingency plans
2 Develop plans for damage control following a shipboard emergency	a Possible damage scenarios are identified and methods of damage control are devised by the vessel's management team as per standard operating procedures b Plans of action for dealing with shipboard damage, particularly that involving the integrity of the vessel's hull, are developed by the vessel's management team in accordance with regulatory requirements and company procedures c Planned damage control procedures for dealing with damage to the vessel and its hull are documented as per company and regulatory requirements d Appropriate resources are organised in readiness for possible deployment should there be damage to the vessel during an emergency
3 Develop plans for fire protection, detection and extinguishment	a Plans of action for fire protection, detection and extinguishment are developed by the vessel's management team as per regulations, and fire control procedures b Plans for fire protection, detection and extinguishment are documented in accordance with company procedures and regulatory requirements c Appropriate resources are organised in readiness for possible deployment should there be a fire on board the vessel during

ELEMENT	PERFORMANCE CRITERIA
	an emergency d Fire control drills are carried out at appropriate times to test the readiness of shipboard personnel to implement plans for fire protection, detection and extinguishment
4 Develop procedures for the use of various lifesaving appliances	a Procedures for the use of various shipboard lifesaving appliances are developed by the vessel's management team in accordance with regulatory requirements, manufacturer's instructions and company procedures b Procedures for the use of various lifesaving appliances are documented in accordance with company procedures and regulatory requirements

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ELEMENT	PERFORMANCE CRITERIA
4 Develop procedures for the use of various lifesaving appliances (continued)	c Instruction is organised for shipboard personnel in the correct use of lifesaving appliances d Lifesaving drills are carried out at appropriate times to test the readiness of shipboard personnel to correctly carry out lifesaving procedures and use lifesaving appliances
5 Coordinate the implementation of emergency response plans	a Information on emergency response plans is distributed and made available to shipboard personnel via noticeboards, pamphlets and documented instructions b Appropriate instruction is organised for shipboard personnel in their roles and responsibilities during various types of shipboard emergencies c Appropriate emergency drills are carried out at appropriate times to test the readiness of shipboard personnel to correctly

ELEMENT	PERFORMANCE CRITERIA
	carry out various emergency response plans d Appropriate alarms and directions are given when an emergency is detected e Action in dealing with an emergency is coordinated in accordance with the emergency response plan, regulatory requirements and company procedures f Details of a shipboard emergency and the action taken is documented in accordance with regulatory requirements and company procedures
6 Implement safety precautions before entering tanks or confined spaces	a Maintenance activities are planned and carried out in accordance with technical legislative, safety, and procedural specifications b Precautions before entering tanks or confined spaces are understood, applied and demonstrated

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Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

1 Relevant sections of the IMO Conventions and Codes, AMSA Marine Orders, national standards, codes and regulations applicable to damage control during shipboard emergencies

2 safety management system plans, procedures, checklists and instructions

3 Relevant OH&S legislation, codes of practice, policies and procedures

4 Requirements for emergency response contingency plans as per international regulations, AMSA Marine Orders, NSCV and company policy

5 Potential navigational emergencies for vessels and appropriate action and solutions

6 General principles of damage control and the manner in which watertight integrity of hull is maintained on a vessel, including the importance of preparation, control and repair

7 The concept of reserve buoyancy and its relevance to damage control on board vessels

8 Statutory requirements pertaining to damage control in vessels

9 Ways of controlling damage during a flooding emergency, including the use of various shipboard items that can be used for damage control purposes such as mattresses, canvas and clothing

10 Maritime communication techniques used during navigational emergencies

11 Mandatory knowledge and skills in personal survival techniques, firefighting and fire prevention required of all seafarers, as per Section A VI/1 of the IMO STCW 95 Code or the NSCV and relevant national standards and regulations.

12 Safety precautions for the entering of confined spaces

REQUIRED KNOWLEDGE

13 Procedures for the use of lifesaving and survival equipment

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REQUIRED SKILLS

This describes the basic skills required for this unit.

1 Communicate effectively with others when developing emergency and damage control plans and handling emergency situations on board a vessel

2 Read and interpret instructions, regulations, procedures and other information relevant to the development of emergency and damage control plans and the handling of emergency situations on board a vessel

3 Select and use appropriate communications equipment when carrying out the role and responsibilities of a Ship Security Officer

4 Interpret and apply security and safety practices and regulations

5 Complete documentation and reporting requirements on matters related to the development of emergency and damage control plans and the handling of emergency situations on board a vessel

6 Work as a team with others on matters relevant to the development of emergency and damage control plans and the handling of emergency situations on board a vessel

7 Take appropriate initiatives related to the development of emergency and damage control plans and the handling of emergency situations on board a vessel

8 Organise and manage the handling of emergency situations on board a vessel

9 Monitor and anticipate problems and risks related to the development of emergency and damage control plans and the handling of emergency situations on board a vessel and take appropriate action

10 Modify activities dependent on differing workplace and security contingencies, risk situations and potential threats

11 Identify and solve problems and potential risks associated with the handling of

REQUIRED SKILLS

emergency situations on board a vessel

12 Report emergency situations on board a vessel and take appropriate action based on available information and procedures

13 Instruct vessel personnel on procedures to be taken during emergency situations on board a vessel

14 Operate, test, calibrate and maintain emergency and lifesaving equipment available on a vessel

15 Select and use appropriate equipment when handling emergency situations on board a vessel

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 Prepare contingency plans for emergency response b Develop plans for damage control following a shipboard emergency c Develop plans for fire protection, detection and extinguishment on board a vessel d Develop procedures for the use of various lifesaving appliances e Develop plans for rescue of personnel f Demonstrate use of lifesaving and survival equipment g Identify typical problems that may occur during a shipboard

	emergency and take appropriate action h Communicate effectively with others during shipboard emergencies i Document emergency response plans j Prepare shipboard personnel to implement emergency response plans if required
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 developing emergency response plans and handling emergencies 2 identifying and evaluating problems that may occur during a shipboard emergency and determining appropriate courses of action 3 identifying and implementing improvements to emergency response plans 4 applying safety and lifesaving precautions and procedures during emergency situations on board a vessel 5 preparing shipboard personnel to implement emergency response plans c Shows evidence of application of relevant workplace procedures, including: 1 relevant sections of IMO Conventions and Codes and AMSA Marine Orders and NSCV/USL Code 2 safety management system and procedures 3 IMO ISPS Codes and other vessel security regulations 4 OH&S regulations and hazard prevention policies and procedures

Evidence Guide (continued)

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2 Evidence required for demonstration of consistent performance (continued)	5 issue resolution procedures 6 job procedures and work instructions 7 relevant regulations relating to shipboard emergencies and damage control 8 environmental protection during emergencies d Action is taken promptly to report and/or rectify shipboard emergencies in accordance with statutory requirements and company 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 and communication with others
3 Context of 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

4Specific resources required for assessment	Access is required to opportunities to: a participate in a range of role plays, case studies and/or other simulated practical and knowledge assessments that demonstrate the skills and knowledge to develop emergency response plans and handle emergency situations on board vessels; and/or b develop or improve emergency response plans on board an operational commercial 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 regulations, conventions and codes
b. Work is performed:	1 performed relatively independently under broad operational requirements, with accountability and responsibility for self and others in planning for and coordinating shipboard emergencies

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

c. Work involves:	1	the application of a range of marine emergency principles, practices and procedures across a wide and often unpredictable variety of shipboard emergencies. Contribution to the development of emergency response plans is required. Accountability and responsibility for self and others in preparing or the possible implementation of emergency plans is involved. The Master has ultimate responsibility within the vessel's management team for the development and implementation of emergency control plans and responses. The Chief Engineer is responsible for the management, development and implementation of the machinery space emergency control plans
d. Work requires:	1	significant judgement in planning, technical and leadership functions related to the development and coordination of emergency procedures on board vessels

2. WORKSITE ENVIRONMENT

a Vessel may include:	1	any Australian or international commercial vessel
b Plans for emergency response may include:	1	defining the roles and responsibilities of shipboard personnel during the emergency
	2	establishment of a chain of command
	3	details of the sequence of action to be taken during the type(s) of emergency concerned
	4	damage assessment procedures
	5	damage control measures

Range Statement (**continued**)

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VARIABLE	SCOPE
b Plans for emergency response may include: (**continued**)	6 resources deployment procedures, including use of day-to-day items 7 communications strategy 8 lifesaving procedures 9 abandon vessel procedures where required 10 rescue of personnel from confined spaces
c Potential emergencies may occur:	1 by day or night 2 under any possible conditions of weather and loading 3 while underway 4 during berthing and unberthing operations 5 while anchoring or mooring
d Emergencies may include:	1 collision with another vessel 2 explosion on board a vessel 3 fire on board a vessel 4 impairment of integrity of hull 5 loss of steering control or motive power 6 grounding 7 beaching a vessel

VARIABLE	SCOPE
	8 person overboard
	9 rescue and evacuation (including from confined spaces) of injured personnel
e Damage control measures in a flooding emergency may include:	1 use of softwood wedges and plugs to reduce water ingress
	2 erection and application of vertical shoring
	3 construction and fitting of a leak-stopping mat
	4 temporary repair of a ruptured pressurised pipe
	5 operation of a portable salvage pump

Range Statement (**continued**)

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VARIABLE	SCOPE
f Damage control measures in a fire or explosion emergency may include:	1 use of appropriate firefighting equipment and techniques such as various types of fire extinguishers, fire blankets, fire hoses and nozzles, and foam applicators
	2 activation of fixed firefighting sprinklers and systems
	3 fire extinguishment methodologies
	4 boundary cooling techniques
g Survival and lifesaving equipment may include:	1 firefighting outfits and associated equipment
	2 life-jackets
	3 exposure suits
	4 immersion suits

VARIABLE	SCOPE
	5 survival craft 6 radio devices, including EPIRBs
h Sources of information and documentation may include:	1 safety management system plans, procedures, checklists and instructions 2 operational orders 3 navigational charts 4 IMO Conventions and Codes 5 AMSA Marine Orders 6 NSCV Code 7 ISPS Code 8 vessel's log 9 company emergency procedures 10 vessel manufacturer's instructions and recommended procedures for damage control measures 11 instructions of relevant maritime authorities 12 relevant Australian and international standards
i Applicable regulations and legislation may include:	1 relevant sections of the IMO Codes and Conventions and AMSA Marine Orders 2 NSCV Code

Range Statement (**continued**)

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VARIABLE	**SCOPE**
i Applicable regulations and legislation may include: (**continued**)	3 International Regulations for Preventing Collisions at Sea 4 relevant international, Commonwealth, State and Territory Marine and OH&S legislation

Unit Sector(s)

Not applicable.

Field

Field MF Operational Quality and Safety

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.