



Australian Government

MARB4002A Implement vessel planned maintenance system

Release 1

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Modification History

Release 1

This is the first release of this unit.

Unit Descriptor

This unit involves the skills and knowledge required to establish, organise and implement preventative and reactive maintenance programs to optimise vessel operational performance.

Application of the Unit

This unit applies to those working on vessels as a Chief Integrated Rating.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

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

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| 1 Develop maintenance plan | <ul style="list-style-type: none">1.1 Vessel and equipment specifications, service requirements and organisational procedures are checked for recommended maintenance intervals and processes according to the safety management system1.2 <i>Special requirements for maintenance</i> are separated from <i>routine maintenance tasks</i>1.3 Maintenance plan and a related work schedule are developed1.4 Procedures for safety checks of equipment are developed and documented according to organisational procedures1.5 Recordkeeping system is developed for maintenance work completed and equipment replaced according to organisational procedures |
| 2 Establish maintenance systems | <ul style="list-style-type: none">2.1 <i>Resource requirements</i> are identified and supplied2.2 Roles and responsibilities of the crew are clarified and built into position descriptions and work instructions2.3 Mentoring and training is provided to support the <i>maintenance strategy</i>2.4 Maintenance procedures and schedules are prepared to minimise negative impacts on vessel operations, costs, waste and the environment2.5 <i>Potential risks</i> are analysed and management strategies recommended2.6 Contingency plans are prepared2.7 Maintenance schedules and procedures are effectively communicated to crew |
| 3 Implement maintenance plan | <ul style="list-style-type: none">3.1 Consumables and equipment are coordinated to meet maintenance work schedule3.2 Maintenance work schedule is completed according to maintenance plan3.3 Technical assistance is provided to crew in completing maintenance activities as required3.4 Appropriate readings, measurements and recordings are made and compared to equipment and other relevant specifications3.5 Areas of vessel and equipment requiring further testing are identified |

and appropriate procedures for testing are implemented

- 3.6 Appropriate adjustments to the maintenance plan are made based on experience and required documentation is completed
- 3.7 Maintenance records are completed and forwarded to appropriate personnel
- 3.8 Areas where changes to equipment operation or routine maintenance are required to maintain optimum work output and equipment life are noted

4 Monitor and review maintenance management system

- 4.1 Continuous improvement strategies are developed
- 4.2 Performance criteria for ***maintenance goals*** are determined and data collection strategies are established
- 4.3 Performance information and outcomes are analysed and implications reported to appropriate personnel

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required Skills:

- Determine and recommend the need for capital expenditure for the replacement of plant and equipment
- Develop maintenance strategies including establishing criteria for determining maintenance priorities and planning and scheduling routine equipment and overhead maintenance to meet quality system requirements
- Develop recordkeeping procedures to document maintenance costs, problems, priorities, solutions, schedules and completions
- Develop workforce commitment to effective maintenance strategies
- Establish and monitor performance targets for maintenance teams within performance planning and appraisal processes
- Evaluate and recommend alternative maintenance policies and strategies including changes in work roles and responsive/preventative models for maintenance
- Identify and apply relevant work health and safety (WHS)/occupational health and safety (OHS), regulatory and organisational requirements
- Manage maintenance costs
- Monitor performance of the system
- Present reports

Required Knowledge:

- Cleaning materials, and storage and handling of such materials
- Cost elements in maintenance system costing and budgeting
- Costs resulting from poor maintenance and the benefits of a preventative maintenance system
- Health hazards associated with maintenance procedures
- Impacts of poor maintenance on the vessel, and on occupational and environmental safety
- Lubrication and lubricant storage and handling
- Maintenance issues related to the vessel
- Plant and equipment falling under the scope of the maintenance program
- Relevant legislation and regulations, and industrial agreements
- Theory of corrosion and cathodic protection
- Use and care of personal safety equipment

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, the required skills and knowledge, the range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the Elements, Performance Criteria, Required Skills, Required Knowledge and include:

- developing effective planning documents
- ensuring currency of relevant legislative and regulatory knowledge.

Context of and specific resources for assessment

Performance is demonstrated consistently over time and in a suitable range of contexts.

Resources for assessment include access to:

- industry-approved marine operations site where implementing a vessel planned maintenance system may be conducted
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities
- range of relevant exercises, case studies and/or other simulated practical and knowledge assessments
- appropriate range of relevant operational situations in the workplace.

In both real and simulated environments, access is required to:

- relevant and appropriate materials and equipment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.

Method of assessment

Practical assessment must occur in an:

- appropriately simulated workplace environment and/or
- appropriate range of situations in the workplace.

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate to this unit:

- direct observation of the candidate implementing a vessel planned maintenance system
- direct observation of the candidate applying relevant WHS/OHS requirements and work practices.

Guidance information for

Holistic assessment with other units relevant to the industry

assessment

sector, workplace and job role is recommended.

In all cases where practical assessment is used it should be combined with targeted questioning to assess Required Knowledge.

Assessment processes and techniques must be appropriate to the language and literacy requirements of the work being performed and the capacity of the candidate.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below.

Special requirements for maintenance may include:

- Damage repair
- Hatch cover watertight arrangements
- Main engine or auxiliary machinery breakdowns
- Replacing defective cargo lifting equipment

Routine maintenance tasks may include:

- Back-ups
- Changing user codes
- Checks of cooling system, fuel, grease and oil, battery levels
- Confirmation of operational effectiveness
- Dismantling and assembling
- Identification and replacement of worn parts
- Inspections of fan belts, leads, lines, connections, air filters, hydraulics, lighting
- Minor adjustments
- Testing

Resource requirements may include:

- Materials
- Personnel
- Tools and equipment
- Training

Maintenance strategy may include:

- Cleaning
- Electrical
- Emergency lighting
- Evacuation
- Housekeeping
- Painting
- Pests
- Plumbing
- Security

Potential risks may include:

- Working at heights
- Working in confined spaces
- Working overside
- Dealing with hazardous material
- Hot work

Maintenance goals may include:

- Changes in attitudes
- Costs
- Frequency of breakdowns
- Length of time out of action

- Time of repairs

Unit Sector(s)

Not applicable.

Competency Field

Equipment Checking and Maintenance