



Australian Government

MARH020 Forecast weather and oceanographic conditions to plan a safe passage

Release: 1

MARH020 Forecast weather and oceanographic conditions to plan a safe passage

Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

Application

This unit involves the skills and knowledge required to forecast weather and oceanographic conditions to plan a safe passage.

This unit applies to people working in the maritime industry in the capacity of:

- Master of a commercial vessel Unlimited.

Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit.

- This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as a Master Unlimited and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
- Those regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Pre-requisite Unit

Not applicable.

Competency Field

H – Navigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Forecast area weather

- 1.1** Synoptic chart is interpreted and recorded
- 1.2** Information received by weather fax is interpreted and recorded
- 1.3** Weather reports are obtained, interpreted and recorded
- 1.4** Observations of weather and cloud formations are made, interpreted and recorded
- 1.5** Statistical data and observations are used to predict likely weather conditions for a determined period

2 Use information to predict oceanographic conditions

- 2.1** Information on ocean current systems is interpreted and recorded
- 2.2** Nautical publications on tides and currents are used to calculate tidal conditions
- 2.3** Wave height and swell forecast is made using available information
- 2.4** Potentially dangerous oceanographic conditions are identified and appropriate actions are taken to maintain safety of navigation and to minimise risk to safety of vessel

3 Maintain records of weather and oceanographic information and forecasts

- 3.1** Statistical data and observations are recorded and filed according to organisational procedures
- 3.2** Actions taken to maintain safety of navigation and to minimise risk to safety of vessel as a result of weather and oceanographic forecasts, are documented according to organisational procedures
- 3.3** Meteorological and nautical publications are updated and stored according to organisational procedures

Foundation Skills

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

Range of Conditions

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

Unit Mapping Information

This unit replaces and is equivalent to MARH011 Forecast weather and oceanographic conditions to plan a safe passage.

Links

Companion Volume implementation guide can be found in VetNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARH020 Forecast weather and oceanographic conditions to plan a safe passage

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- calculating tidal conditions
- ensuring currency of relevant reference material
- observing, interpreting and forecasting weather and oceanographic conditions
- reading, interpreting and applying weather and oceanographic information
- selecting and using shipboard instruments to assist in forecasting weather and oceanographic conditions
- supporting reasons for intended action with statistical data and observations of actual conditions
- undertaking appropriate actions
- using appropriate nautical publications on tides and currents
- using tide tables to calculate height of tide.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- air masses and fronts
- appropriate actions, including:
 - avoiding storm centres and dangerous quadrants by adjusting course and speed
 - ensuring all crew and passengers are informed
 - ensuring all vessel equipment is properly secured
 - securing cargo and stores
 - taking action to avoid extreme adverse weather conditions
- basic principles for making meteorological and oceanographic measurements
- characteristics of various weather systems, including tropical revolving storms, and avoidance of storm centres and dangerous quadrants
- cloud classifications

- cyclones, storms and gales
- dangerous oceanographic conditions, including:
 - excessively high sea state and swells
 - ice formations on ship super structure and remedies
 - tornados, tropical revolving storms, hurricanes and gales
- effects on navigation and vessel handling of wind, currents and bottom topography
- formation of sea waves and swell waves
- heat exchange process
- ocean current systems, including surface water circulation of the ocean and principal adjoining seas
- pressure systems and cold fronts
- principles and procedures of weather forecasting using information obtained from observations, charts, satellite images, email, reports and instruments
- principles relating to the safety of navigation in ice
- procedures for filing and maintaining weather and oceanographic information
- procedures to be followed during gale or icy conditions and tropical revolving storms
- sea state
- sources of weather and oceanographic information, and methods for their interpretation
- synoptic and prognostic charts
- tide prediction
- tropical revolving storms
- types of floating ice, their origins and movements
- typical problems in forecasting weather and oceanographic conditions
- use of tide tables
- vertical division of the atmosphere
- voyage planning principles incorporating weather conditions, including:
 - air masses and fronts
 - cloud classifications
 - cyclones, storms and gales
 - heat exchange process
 - ocean currents and wave height
 - pressure systems and cold fronts
 - sea state
 - tide prediction
 - tropical revolving storms
 - use of tide tables
 - vertical division of the atmosphere
 - weather data provided by shipboard instruments
- WHS/OHS requirements and work practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

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

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

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