



Australian Government

Assessment Requirements for MARA011 Contribute to basic operations of ships in polar waters

Release: 1

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Modification History

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

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 environmental factors and regulations in accordance with legislative and environmental requirements
- applying hazard identification and risk control measures
- applying relevant international regulations, codes, industry guidelines and industry standards relevant to operations in polar waters
- applying safe work practices and risk assessments for crew and shipboard safety
- communicating clearly and effectively
- correctly identifying and using safety data sheets (SDS)/material safety data sheets (MSDS) relevant to hazards
- following safe work practices, workplace procedures and emergency response procedures
- identifying and acting on hazardous situations
- selecting and using personal protective equipment (PPE) and devices appropriate to an emergency situation.

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:

- fundamentals of operating and manoeuvring a vessel in ice, including:
 - engine loads and cooling problems
 - ballast tank monitoring
 - cargo operations in polar waters
 - safe speed in the presence of ice and icebergs
 - safety procedures during ice transit
- fundamentals of environmental factors, including:
 - areas where shipping is prohibited
 - areas where shipping should be avoided

- limitations of oil spill equipment
- sensitive sea areas regarding discharge
- ship plans for coping with increased volumes of waste, including:
 - garbage, bilge water and sewage
- lack of infrastructure
- fundamental knowledge of ice characteristics and areas where different types of ice can be expected in operational areas, including:
 - differential movement of icebergs and ice packs
 - effect of wind and current on ice
 - friction from snow covered ice
 - ice concentrations
 - ice blink
 - ice imagery
 - ice physics, terms, formation, growth, ageing and stage of melt
 - ice pressure and distribution
 - ice regimes in different regions, including:
 - ice types
 - first year
 - land ice
 - multiyear ice
 - sea ice
 - significant differences between the Arctic and Antarctic
 - implications of spray icing, including:
 - danger of icing up
 - options during icing up
 - precautions to avoid icing up
 - tides and currents in ice
 - water sky
- fundamental knowledge of vessel performance in ice and low air temperature, including:
 - engineering requirements for operating in ice
 - equipment and machinery limitation in ice condition and low air temperature
 - hull designs
 - ice strengthening requirements
 - limitations of ice-classes
 - low-temperature system performance
 - monitoring of ice pressure on hull
 - sea suction
 - superstructure insulation and special systems
 - vessel characteristics
 - vessel types

- water intake
- winterisation and preparedness of vessel, including engine and deck
- fundamental understanding of regulatory requirements, including:
 - Antarctic Treaty
 - Polar Code
 - accident reports for vessels in polar waters
 - International Maritime Organization (IMO) standards for operation in remote areas
 - International Convention for the Prevention of Pollution from Ships (MARPOL)
- fundamental knowledge of crew preparation, working conditions and safety, including:
 - contingency planning
 - most common hull and equipment damages and how to avoid these
 - how to establish and implement safe working procedures for specific polar events:
 - ice covered surfaces
 - low temperatures
 - PPE
 - use of buddy system
 - working time limitations
 - human factors, including:
 - cold fatigue
 - crew welfare
 - medical first aid aspects
 - need for extra resources, including:
 - bunker
 - extra clothing
 - food
 - prevention and removal of ice, including the factors of accretion
 - dangers when crews are exposed to low temperatures
 - fatigue problems due to noise and vibrations
 - search and rescue (SAR) readiness and responsibilities, including:
 - sea area
 - SAR communication facility limitation
 - survival requirements, including:
 - group survival equipment
 - personal survival equipment
 - superstructure deck icing, including effect on trim and stability
- oil spill and pollution in ice, including regulatory and environmental consequences.

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 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.

Links

Companion Volume implementation guide can be found in VetNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>