




16715
CG-OES Policy Letter
No. 01-16

From:


S. J. Kelly, CAPT
COMDT (CG-OES)

To: Distribution

Subj: GUIDELINES FOR TRAINING OF PERSONNEL ON SHIPS SUBJECT TO THE
INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS (POLAR
CODE)

Ref: (a) International Code for Ships Operating in Polar Waters (Polar Code)
(b) International Convention on Standards of Training, Certification and Watchkeeping
for Seafarers, 1978, as amended (STCW), Resolution 11 and section B-V/g of the
STCW Code
(c) International Maritime Organization (IMO) Report of the Maritime Safety
Committee on its Ninety Fifth Session (MSC 95/22/Add2) Annex 8 and 9

1. Purpose. This policy letter provides guidance for the training of certain personnel engaged on ships that operate in an area subject to the Polar Code.
2. Action. The Coast Guard will use this policy as a guide to help ensure personnel engaged on ships subject to the Polar Code are trained, in a manner that provides a level of safety taking into account the challenges specific to the unique polar environment. Officers In Charge, Marine Inspection (OCMIs) should bring this policy to the attention of the maritime industry within their zones of responsibility.
3. Directives Affected. None.
4. Background.
 - a. Current shipping forecasts suggest an increase in seagoing ships transiting remote polar areas. This affects both the safety of life at sea and the protection of the marine environment and has become a growing global concern. In addition to the daily challenges of normal shipboard operations, ships operating in polar areas are subject to unpredictable and poor weather conditions, degraded navigational tools, increased threats to operating equipment and increased stability concerns.

- b. Recognizing that the operation of ships sailing in polar waters calls for specific education, training, experience and related qualifications for officers, (Resolution 11) of the 2010 amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) included non-mandatory guidance on training for deck and engineer officers serving on ships operating in polar waters. The guidance is contained in Section B-V/g of the STCW Code.
 - c. In response to the challenges faced by these ships and the concern for their safe operation the International Maritime Organization (IMO) has developed and adopted, a mandatory International Code for Ships Operating in Polar Waters, commonly referred to as the Polar Code. This code addresses safety and environmental requirements for ships and the level of training required for deck officers engaged on them. The training contained in the Polar Code, is risk-based depending on the type of ship and the ice conditions in the area of operation. Implemented internationally through the Safety of Life at Sea (SOLAS), Prevention of Pollution from Ships (MARPOL), and STCW conventions, the Polar Code will come into force on January 1, 2017. Enclosure (2) provides the training information contained in Chapter 12 of the Polar Code.
 - d. In order to obtain input from U.S. stakeholders and to facilitate the development of the U.S. position to the IMO on the training requirements supporting the Polar Code, in 2013 the Merchant Marine Personnel Advisory Committee (MERPAC) chartered a working group to address this issue. The working group developed a proposal that included the training competencies for U.S. mariners serving on ships operating in polar waters. The working group held multiple meetings and provided recommendations on minimum standards of competence and sea service requirements for polar training at the basic and advanced levels. The group also developed recommendations on how existing mariners with experience operating in polar waters would be grandfathered under the new requirements. MERPAC's proposal provided the basis of the U.S. position in the shaping of the relevant amendments to the STCW Convention.
 - e. The STCW Convention and Code is the instrument which provide the international standards for seafarer training. Through the work of the IMO's Sub-committee on Human Element, Training and Watchkeeping (HTW), amendments to the STCW Convention and Code were developed to define the training requirements supporting the implementation of the Polar Code. These amendments were finalized at HTW3, approved at MSC95, and are expected to be adopted in July of 2016. The amendments are expected to enter into force on January 1, 2018. Enclosure (3) provides these approved amendments.
5. Discussion.
- a. Whenever mariners sign aboard a vessel, it is imperative that they become familiar with that vessel in order to safely perform their assigned duties. 46 CFR 15.405 clarifies this requirement, stating that each credentialed mariner be familiar with the relevant characteristics of the vessel appropriate to his or her duties and responsibilities prior to

assuming those duties and responsibilities. When the vessel is seagoing, this responsibility rests with both the mariner and the employer as set forth in 46 CFR 15.1105(b), which requires that mariners subject to STCW complete familiarization training before performing any duty or being assigned any responsibility unless they are familiar with those duties and responsibilities and with all of the vessel's arrangements, installations, equipment, procedures, and characteristics relevant to his or her routine and emergency duties or responsibilities.

- b. The amendments to the STCW Convention and Code mentioned in paragraph 4.(e) above, include sea service and recency requirements, as well as the minimum standards of competence at the basic and advanced levels for deck officers operating in polar waters. There are no additional training requirements for personnel assigned to the engineering department. These training requirements may be used as the basis for any domestic implementation.
 - c. Cognizant that there is a gap between the time the Polar Code enters into force and the adoption of the amendments to the STCW Convention and Code by IMO, the Coast Guard is providing this guidance to ensure there are sufficiently trained mariners by the time the Polar Code enters into force.
 - d. Enclosure (1) provides training guidance to shipowners, seafarers and training providers to be used as a basis to conform to the training requirements of the Polar Code.
 - e. Enclosure (2) provides excerpts from chapter 12 of the Polar Code addressing the minimum levels of training for deck officers..
 - f. Enclosure (3) provides the STCW amendments and the tables specifying the minimum standards of competence in basic and advanced training for ships subject to the Polar Code.
 - g. At this time the Coast Guard will not be issuing endorsements to mariners completing the requirements contained in this policy letter. If endorsements are issued as part of future domestic implementation, mariners presenting documentary evidence of training completed to meet the requirements of the non-mandatory guidance contained in Section B-V/g of the STCW Code, or Enclosure (1) of this policy, may be evaluated on a case by case basis and considered to meet part of the transitional provisions of the STCW amendments described in Enclosure (3).
6. Disclaimer. While the guidance contained in this document may assist the industry, public, Coast Guard, and other Federal and State regulators in applying statutory and regulatory requirements, the guidance is not a substitute for applicable legal requirements nor is it a regulation itself.

Subj: GUIDELINES FOR TRAINING OF PERSONNEL ON
SHIPS SUBJECT TO THE POLAR CODE

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7. Changes. This policy letter will be posted on the web at <http://homeport.uscg.mil>. Changes to this policy will be issued as necessary. Suggestions for improvements of this policy should be submitted in writing to Commandant, U.S. Coast Guard Headquarters, Office of Operating and Environmental Standards, (CG-OES) at the address listed on the first page.

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Encl: (1) Training guidance for deck officers on ships subject to the Polar Code
(2) Excerpts of Chapter 12 of the International Code for Ships Operating in Polar Waters
(3) Amendments to the STCW Convention and Code defining the minimum standards of competence in basic and advanced training for ships operating in polar waters

TRAINING GUIDANCE FOR DECK OFFICERS ON SHIPS SUBJECT TO THE POLAR CODE

The interim guidance in this enclosure is based upon the mandatory training requirements in Chapter 12 of the International Code for Ships Operating in Polar Waters (Polar Code); and the supporting amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) and the Seafarers' Training, Certification and Watchkeeping (STCW) Code. These amendments were approved by IMO at the ninety-fifth session of the Maritime Safety Committee in June of 2015, and are expected to be adopted for inclusion into the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) and the Seafarers' Training, Certification and Watchkeeping (STCW) Code in July 2016. The amendments will enter into force on January 1, 2018.

Once adopted by IMO, these training requirements may become the basis for domestic regulation. We encourage shipowners, seafarers and training providers to use the information in this enclosure as the basis to meet the training requirements of the Polar Code.

1 GENERAL

1.1 This guidance recommends the level of competence necessary for the safe operation of ships subject to the Polar Code. Accordingly, each deck officer onboard a ship operating in polar waters should complete the training appropriate for the position they fill. Enclosure (2) provides the training information contained in Chapter 12 of the Polar Code.

1.2 Mariners on U.S. vessels must comply with requirements in 46 CFR 15.405 (Familiarity with vessel characteristics) and 46 CFR 15.1105 (Familiarization and basic training), as appropriate, before assuming their duties and responsibilities. Mariners on non-U.S. vessels should receive familiarity training required by the STCW Regulation I/14, *Responsibilities of companies*.

1.3 In addition, personnel engaged on ships operating in areas subject to the Polar Code should receive familiarization training with the procedures and equipment contained in the Polar Waters Operating Manual (PWOM), in accordance with their duties and responsibilities.

1.4 The following training levels have been identified for deck officers operating in polar waters where the Polar Code is in effect:

.1 basic training for masters, chief mates, and officers in charge of a navigation watch engaged on ships operating in polar waters, as required by the Polar Code; and

.2 advanced training for the masters and chief mates engaged on ships operating in polar waters, as required by the Polar Code

1.5 For the purpose of these guidelines the following definitions from the Polar Code apply:

Polar Waters¹ means ocean waters including both Arctic and Antarctic waters

Antarctic Waters means those waters which are south of 60° S

Arctic Waters means those waters which are located north of a line extending from latitude 58°00'.0 N, longitude 042°00'.0 W to latitude 64°37'.0 N, longitude 035°27'.0 W and thence by a rhumb line to latitude 67°03'.9 N, longitude 026°33'.4 W and thence by a rhumb line to Sørkapp, Jan Mayen and by the southern shore of Jan Mayen to the Island of Bjørnøya and thence by a great circle line from the Island of Bjørnøya to Cap Kanin Nos and thence by the northern shore of the Asian continent eastward to the Bering Strait and thence from the Bering Strait westward to latitude 60° N as far as Il'pyrskiy and following the 60th North parallel eastward as far as and including Etolin Strait and thence by the northern shore of the North American continent as far south as latitude 60° N and thence eastward along parallel of latitude 60°N, to longitude 56°37'.1 W and thence to the latitude 58°00'.0 N, longitude 042°00'.0 W.

Bergy Waters mean an area of freely navigable water in which ice of land origin is present in concentrations less than 1/10. There may be *sea ice* present, although the total concentration of all ice shall not exceed 1/10.

Open Waters means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present.

¹ The Coast Guard interprets this definition to mean the ocean waters within Antarctic and Arctic waters.

2 TRAINING GUIDANCE

2.1 Prior to being assigned duties on board a ship operating in an area subject to the Polar Code, all deck officers should receive appropriate training for polar water operations in accordance with this section.

Ice conditions	Tankers	Passenger ships	Other
Ice Free	Not applicable	Not applicable	Not applicable
Open waters	Basic training for master, chief mate and officers in charge of a navigational watch	Basic training for master, chief mate and officers in charge of a navigational watch	Not applicable
Other waters	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch.

2.2 Shipowners may use a person(s) other than the master, chief mate or officers of the navigational watch to satisfy the requirements for training in paragraph 2.1, provided that:

.1 this person(s) holds an endorsement for Master or Chief Mate as described in 46 CFR §11.305, 11.307, 11.311, or 11.313 or is qualified and certified in accordance with regulation II/2 of the STCW Convention and section A-II/2 of the STCW Code as appropriate to the tonnage of the vessel, and meets the advanced training requirements noted in section 3.2;

.2 while operating in polar waters the ship has at least one person per watch meeting the appropriate training requirements for polar waters;

.3 this person(s) is subject to the minimum hours of rest requirements in 46 CFR 15.1111 at all times;

.4 when operating in waters other than open waters or bergy waters, the master, chief mate and officers in charge of a navigational watch on passenger ships and tankers shall meet the applicable basic training requirements noted in section 3.1; and

.5 when operating in waters with ice concentration of more than 2/10, the master, chief mate and officers in charge of a navigational watch on cargo ships other than tankers shall meet the applicable basic training requirements noted in section 3.1.

2.3 The use of a person other than the officer of the navigational watch to satisfy the requirements for training does not relieve the master or officer of the navigational watch from their duties and obligations for the safety of the ship.

3 Standard of Competence

3.1 Basic Training

3.1.1 Seafarers may establish that they meet the standard of competence specified in Table 2 below by:

.1 having completed approved seagoing service on board a ship operating in polar waters, performing duties in the deck department at the operational or management level², for a period of at least three months in total during the preceding five years; or

.2 having successfully completed a training course meeting the standard of competence.

² As defined in 46 CFR 10.107.

Table 2

**Specification of minimum standard of competence in basic training
for ships operating in polar waters**

Column One	Column Two	Column Three	Column Four
Competence	Knowledge, Understanding, proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Contribute to safe operation of vessels operating in polar waters</p>	<p><i>Basic knowledge of ice characteristics and areas where different type of ice can be expected in the area of operation:</i></p> <ol style="list-style-type: none"> 1. Ice physics, terms, formation, growth, aging and stage of melt; 2. Ice types and concentrations; 3. Ice pressure and distribution; 4. Friction from snow covered ice. 5. Implications of spray-icing; danger of icing up, precautions to avoid icing up and options during icing up; 6. Ice regimes in different regions. Significant differences between the Arctic and the Antarctic, first year and multiyear ice, sea ice and land ice; 7. Use of ice imagery to recognize consequences of rapid change in ice and weather conditions; 8. Knowledge of ice sky and water blink; 9. Knowledge of differential movement of icebergs and pack 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Identification of ice properties and their characteristics of relevance for safe vessel operation.</p> <p>Information obtained from ice information and publications is interpreted correctly and properly applied.</p> <p>Use of visible and infrared satellite images. Use of egg charts. Coordination of meteorological and oceanographic data with ice data.</p> <p>Measurements and observations of weather and ice conditions are accurate and appropriate for safe passage</p>

	ice; 10. Knowledge of tides and currents in ice; 11. Knowledge of effect of wind and current on ice.		
	<p><i>Basic knowledge of vessel performance in ice and low air temperature:</i></p> <ol style="list-style-type: none"> 1. Vessel characteristics; 2. Vessel types, hull designs; 3. Engineering requirements for operating in ice; 4. Ice strengthening requirements; 5. Limitations of ice-classes; 6. Winterization and preparedness of vessel, including deck and engine; 7. Low-temperature system performance; 8. Equipment and machinery limitation in ice condition and low air temperature; 9. Monitoring of ice pressure on hull; 10. Sea suction, water intake, superstructure insulation and special systems. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Identification of vessel characteristics and limitations under different ice conditions and cold environmental impact.</p> <p>Procedures are made for risk assessment before entering ice.</p> <p>Awareness of fresh water ballast freezing in ballast tanks.</p> <p>Actions are carried out in accordance with accepted principles and procedures to prepare the vessel and the crew for operations in ice and low air temperature.</p> <p>Communications are clear, concise and effective at all times in a seamanlike manner.</p>
	<p><i>Basic knowledge and ability to operate and manoeuvre a ship in ice:</i></p> <ol style="list-style-type: none"> 1. Safe speed in the presence of ice and icebergs; 2. Ballast tank monitoring; 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training 	<p>Use Polar Code and Polar Water Operations Manual to correctly determine the recommended procedures to load/offload cargo/passengers in low temperatures, monitor ballast water</p>

	<p>3. Cargo operations in the polar waters; 4. Awareness of engine loads and cooling problems; 5. Safety procedures during ice transit.</p>	<p>ship experience 3. approved simulator training, where appropriate 4. approved training</p>	<p>for icing, monitor engine temperatures, anchor watch concerns in ice, and transit near ice.</p> <p>Interpretation and analysis of information from radar is in accordance with sharp lookout and with special caution regarding identification of dangerous ice features.</p> <p>Information obtained from navigational charts, including electronic charts, and publications is relevant, assessed, interpreted correctly and properly applied. The primary method of position fixing is frequent and the most appropriate for the prevailing conditions and routing through ice.</p> <p>Performance checks and tests of navigation and communication systems comply with recommendations for high latitude and low air temperature operation.</p>
<p>Monitor and ensure compliance with legislative requirements</p>	<p><i>Basic knowledge of regulatory considerations:</i></p> <p>1. Antarctic Treaty and the Polar Code; 2. Accident reports concerning vessels in</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>1. approved in-service</p>	<p>Locate and apply relevant portion of the Polar Water Operational Manual</p> <p>Communication is in accordance with local/regional and</p>

	<p>polar waters; 3. IMO standards for operation in remote areas;</p>	<p>experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training</p>	<p>international standard procedures. Legislative requirements related to relevant regulations, codes and practices are identified.</p>
<p>Apply Safe working practices respond to emergencies</p>	<p><i>Basic knowledge of crew preparation, working conditions and safety:</i></p> <ol style="list-style-type: none"> 1. Recognize limitations of search and rescue readiness and responsibility, including radio area A4 and its SAR communication facility limitation; 2. Awareness of contingency planning; 3. How to establish and implement safe working procedures for crew specific to polar environments such as low temps, ice covered surfaces , personal protective equipment, use of buddy system, and working time limitations; 4. Recognize dangers when crews are exposed to low temperatures; 5. Human factors including cold fatigue, medical-first aid aspects, crew welfare; 6. Survival requirements including the use of personal survival equipment and group 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Identification and initial actions on becoming aware of hazardous situations for vessel and individual crew members.</p> <p>Actions are carried out in accordance with Polar Water Operational Manual, accepted principles and procedures to ensure safety of operations and avoid pollution to the marine environment.</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times.</p> <p>Response actions are in accordance with established plans and are appropriate to the situation and nature of the emergency.</p> <p>Correctly identifies and applies legislative requirements related to relevant regulations, codes and practices.</p> <p>Appropriate safety</p>

	<p>survival equipment; 7. Awareness of the most common hull and equipment damages and how to avoid these; 8. Superstructure-deck icing, including effect on stability and trim; 9. Prevention and removal of ice including the factors of accretion; 10. Recognize fatigue problems due to noise and vibrations; 11. Identify need for extra resources, such as bunker, food, and extra clothing.</p>		<p>and protective equipment is correctly used</p> <p>Defects and damages are detected and properly reported</p>
<p>Ensure compliance with pollution-prevention requirements and prevent environmental hazards</p>	<p><i>Basic knowledge of environmental factors and regulations:</i></p> <ol style="list-style-type: none"> 1. Identify particular sensitive sea areas regarding discharge; 2. Identify areas where shipping is prohibited or should be avoided; 3. Special areas in MARPOL; 4. Recognize limitations oil-spill equipment; 5. Plan for coping with increased volumes of garbage, bilge water, sewage, etc.; 6. Lack of infrastructure. 7. Oil spill and pollution in ice, including consequences; 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Legislative requirements related to relevant regulations, codes and practices are identified.</p> <p>Correctly identify/select the limitations on vessel discharges contained in the Polar Code.</p> <p>Correctly applies Polar Water Operations Manual/ Waste Management Plan to determine limitations on vessel discharges and plans for storing waste</p> <p>Identify references that detail areas to be avoided, such as wild life refuge, ecological heritage parks, migratory pathways,</p>

			<p>etc. (MARPOL, Antarctic Treaty, etc.)</p> <p>Identify factors that must be considered to manage waste stream during Polar voyages</p>
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3.2 Advanced Training

3.2.1 Seafarers may establish that they meet the standard of competence specified in Table 3 below by:

- .1 having completed approved seagoing service on board a ship operating in polar waters, performing duties in the deck department at the management level¹, for a period of at least three months in total during the preceding five years; or
- .2 having successfully completed a training course meeting the standard of competence and having completed approved seagoing service on board a ship operating in polar waters, performing duties in the deck department at the management level¹ or while performing watchkeeping duties at the operational level¹ for a period of at least two months in total during the preceding five years.

¹ As defined in 46 CFR 10.107.

Table 3

Specification of minimum standard of competence in advanced training for ships operating in polar waters

Column One	Column Two	Column Three	Column Four
Competence	Knowledge, Understanding, proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a voyage in Polar Waters	<p><i>Knowledge of voyage planning and reporting:</i></p> <ol style="list-style-type: none"> 1. Information sources; 2. Reporting regimes in polar waters; 3. Development of safe routing and passage planning to 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience. 3. approved simulator 	<p>The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage.</p> <p>The reasons for the planned route are</p>

	<p>avoid ice where possible; 4. Ability to recognize the limitations of hydrographic information and charts in polar regions and whether the information is suitable for safe navigation; 5. Passage planning deviation and modification for dynamic ice conditions;</p> <p><i>Knowledge of equipment limitations:</i></p> <ol style="list-style-type: none"> 1. Understand and identify hazards associated with limited terrestrial navigational aids in polar regions; 2. Understand and recognize high latitude errors on compasses; 3. Understand and identify limitations in discrimination of radar targets and ice-features in ice-clutter; 4. Understand and recognize limitations of electronic positioning systems at high latitude; 5. Understand and recognize limitations in nautical charts and pilot descriptions; 6. Understand and recognize limitations in communication systems. 	<p>training, where appropriate. 4. approved training</p>	<p>supported by facts obtained from relevant sources and publications, statistical data and limitations of communication and navigational systems.</p> <p>Voyage plan correctly identified relevant polar regulatory regimes and need for ice-pilotage or/and icebreaker assistance.</p> <p>All potential navigational hazards are accurately identified.</p> <p>Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment.</p>
<p>Manage the safe operation of vessels operating in polar</p>	<p><i>Knowledge and ability to operate and manoeuvre a ship in ice:</i></p>	<p>Examination and assessment of evidence obtained from one or</p>	<p>All decisions concerning navigating in ice are based on a proper assessment of</p>

<p>waters</p>	<ol style="list-style-type: none"> 1. Preparation and risk assessment before approaching ice, including presence of icebergs, and taking into account wind, darkness, swell, fog and pressure ice; 2. Conduct communications with an icebreaker and other vessels in the area and with Rescue Coordination Centers 3. Understand and describe the conditions for the safe entry and exit to and from ice or open water, such as leads or cracks, avoiding icebergs and dangerous ice conditions and maintaining safe distance to icebergs 4. Understand and describe ice ramming procedures – including double and single ramming passage; 5. Recognize and determine the need for bridge watch team augmentation based upon environmental conditions, vessel equipment and vessel ice class; 6. Recognize the presentations of the various ice conditions as they appear on radar. 7. Understand icebreaker convoy terminology, and communications, and take icebreaker 	<p>more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience. 3. approved simulator training, where appropriate. 4. approved training 	<p>the ship's manoeuvring and engine characteristics and the forces to be expected while navigating within polar waters.</p> <p>Demonstrate communications skills, request ice routing, plot and commence voyage through ice.</p> <p>All potential ice hazards are correctly identified.</p> <p>All decisions concerning berthing anchoring, cargo and ballast operations are based on a proper assessment of the ships manoeuvring and engine characteristics and the forces to be expected and in accordance with the Polar Code guidelines and applicable international agreements.</p> <p>Safely demonstrate progression of a vessel through ice, manoeuvring vessel through moderate ice concentration (range of 1/10 to 5/10).</p> <p>Safely demonstrate progression of a vessel through ice, manoeuvring vessel through dense ice concentration (range of 6/10 to 10/10).</p>
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	<p>direction and move in convoy;</p> <p>8. Understand methods to avoid besetment and to free beset vessel, and consequences of besetment;</p> <p>9. Understand towing and rescue in ice, including risks associated with operation;</p> <p>10. Handling ship in various ice concentration and coverage, including risks associated with navigation in ice, and turning-backing; avoidance; etc.;</p> <p>11. Use of different type of propulsion and rudder systems, including limitations to avoid damage when operating in ice;</p> <p>12. Use of heeling and trim-systems.; hazards in connection with ballast and trim in relation with ice;</p> <p>13. Docking and undocking in ice covered waters, including hazards associated with operation and the various techniques to safely and undock in ice covered waters;</p> <p>14. Anchoring in ice, including the dangers to anchoring system – ice accretion to hawse pipe and ground tackle;</p> <p>15. Recognize conditions which impact polar visibility and may give</p>		<p>Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operation and avoid pollution of the marine environment.</p> <p>Safety of navigation is maintained through sailing strategy and adjustment of ship's speed and heading through different types of ice.</p> <p>Actions are understood to permit use of anchoring system in cold temperatures</p> <p>Actions are carried out in accordance with accepted principles and procedures to prepare for icebreaker towing, including notch towing.</p>
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	indication of local ice and water conditions, including sea smoke, blink and refraction.		
Maintain safety of the ship's crew and passengers and the operational condition of life-saving, firefighting and other safety systems	<p><i>Knowledge of safety:</i></p> <ol style="list-style-type: none"> 1. Understand the procedures and techniques for abandoning the ship and survival on the ice and in ice-covered waters; 2. Recognize limitations on fire-fighting systems and life saving appliances due to low air temperatures, 3. Understand unique concerns in conducting emergency drills in ice and low temperatures; 4. Understand unique concerns in conducting emergency response in ice and low air and water temperatures. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience. 3. approved simulator training, where appropriate. 4. approved training. 	<p>Response measures are in accordance with established plans and procedures, and are appropriate to the situation and nature of the emergency.</p>

4 DOCUMENTARY EVIDENCE

4.1 Documentary evidence such as course completion certificates, company letters, etc. should be issued indicating successful completion of basic or advanced training, as appropriate.

4.2 Deck officers engaged on an inspected vessel operating in polar waters must hold a Merchant Mariner Credential (MMC) with an appropriate endorsement as required under 46 CFR 15.401 authorizing service on board the vessel and should hold documentary evidence of completing the training contained in paragraphs 3.1 or 3.2 above.

4.3 If training regulations are published, training completed to meet the requirements described in this enclosure may be evaluated on a case by case basis, and considered to meet part of the transitional provisions of these amendments.

4.4 The Coast Guard will review courses submitted on a voluntary basis that are designed to meet the training requirements outlined in Sections 3.1 or 3.2. These courses will be issued a letter attesting to the review and its conformance with the requirements herein, as appropriate. If

training regulations are published, courses that were subject to this review will have to be re-submitted for approval in accordance with 46 CFR 10.402. Course providers may submit the course information to the National Maritime Center, either by mail or electronically. Course submittals should follow the requirements of 46 CFR 10.402 and NVIC 03-14 and be directed to:

National Maritime Center
Training & Assessment Division (NMC-2)
100 Forbes Drive
Martinsburg, WV 25404
ATTN: Course Approvals

NMCCOURSES@uscg.mil

4.5 At this time the Coast Guard will not be issuing endorsements to mariners completing the training in this enclosure.

**EXCERPTS OF CHAPTER 12 OF THE INTERNATIONAL CODE FOR SHIPS
OPERATING IN POLAR WATERS**

1 GENERAL

1.1 This enclosure includes the risk assessment that determines the level of training required for deck officers on ships subject to the Polar Code. The assessment accounts for the type of ship and the ice conditions in the area of operation. Accordingly, each deck officer onboard a ship operating in polar waters should complete the training appropriate for the position they fill.

2 TRAINING REQUIREMENTS

2.1 CHAPTER 12 – MANNING AND TRAINING

12.1 Goal

The goal of this chapter is to ensure that ships operating in polar waters are appropriately manned by adequately qualified, trained and experienced personnel.

12.2 Functional requirements

In order to achieve the goal set out in paragraph 12.1 above, companies shall ensure that masters, chief mates and officers in charge of a navigational watch on board ships operating in polar waters shall have completed training to attain the abilities that are appropriate to the capacity to be filled and duties and responsibilities to be taken up, taking into account the provisions of the STCW Convention and the STCW Code, as amended.

12.3 Regulations

12.3.1 In order to meet the functional requirement of paragraph 12.2 above while operating in polar waters, masters, chief mates and officers in charge of a navigational watch shall be qualified in accordance with chapter V of the STCW Convention and the STCW Code, as amended, as follows:

Ice conditions	Tankers	Passenger ships	Other
Ice Free	Not applicable	Not applicable	Not applicable
Open waters	Basic training for master, chief mate and officers in charge of a navigational watch	Basic training for master, chief mate and officers in charge of a navigational watch	Not applicable
Other waters	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch	Advanced training for master and chief mate. Basic training for officers in charge of a navigational watch.

12.3.2 The Administration may allow the use of a person(s) other than the master, chief mate or officers of the navigational watch to satisfy the requirements for training, as required in paragraph 12.3.1, provided that:

- .1 this person(s) shall be qualified and certified in accordance with regulation II/2 of the STCW Convention and section A-II/2 of the STCW Code, and meets the advance training requirements noted in the above table;
- .2 while operating in polar waters the ship has sufficient number of persons meeting the appropriate training requirements for polar waters to cover all watches;
- .3 this person(s) is subject to the Administration's minimum hours of rest requirements at all times;
- .4 when operating in waters other than open waters or bergy waters, the master, chief mate and officers in charge of a navigational watch on passenger ships and tankers shall meet the applicable basic training requirements noted in the above table; and
- .5 when operating in waters with ice concentration of more than 2/10, the master, chief mate and officers in charge of a navigational watch on cargo ships other than tankers shall meet the applicable basic training requirements noted in the above table.

12.3.3 The use of a person other than the officer of the navigational watch to satisfy the requirements for training does not relieve the master or officer of the navigational watch from their duties and obligations for the safety of the ship.

12.3.4 Every crew member shall be made familiar with the procedures and equipment contained or referenced in the PWOM relevant to their assigned duties.

AMENDMENTS TO THE STCW CONVENTION AND CODE DEFINING THE MINIMUM STANDARDS OF COMPETENCE IN BASIC AND ADVANCED TRAINING FOR SHIPS OPERATING IN POLAR WATERS

The information in this enclosure contains the amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) and the Seafarers' Training, Certification and Watchkeeping (STCW) Code. These amendments support the training requirements of the International Code for Ships Operating in Polar Waters (Polar Code).

1 GENERAL

These amendments were approved by IMO at the ninety fifth session of the Maritime Safety Committee in June of 2015, and are expected to be adopted for inclusion into the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) and the Seafarers' Training, Certification and Watchkeeping (STCW) Code in July 2016. The amendments will enter into force on 1 January 2018.

2 STCW Amendments

2.1 Amendments to the STCW Convention

2.1.1 Chapter I of the STCW Convention- General Provisions will be amended by adding to regulation I/1.1 after subparagraph .36:

.37 Polar Code means the International Code for Ships Operating in Polar Waters, as defined in SOLAS regulation XIV/1.1.

2.1.2 Chapter I of the STCW Convention- General Provisions will be amended by adding to regulation I/11 after existing paragraph 3:

Every master or officer shall, for continuing seagoing service on board ships operating in polar waters, meet the requirements of paragraph 1 of this regulation and be required, at intervals not exceeding five years, to establish continued professional competence for ships operating in polar waters in accordance with section A-1/11, paragraph 4 of the STCW Code

2.1.3 Chapter V Of the STCW Convention- Special Training Requirements For Personnel On Certain Types Of Ships will be amended by adding a new Regulation V/4 after existing regulation V/2 as follows:

Regulation V/4

Mandatory minimum requirements for the training and qualifications of masters and deck officers on ships operating in polar waters.

1 Masters, chief mates and officers in charge of a navigational watch on ships operating in polar waters, shall hold a certificate in basic training for ships operating in polar waters, as required by the Polar Code.

2 Every candidate for a certificate in basic training for ships operating in polar waters shall have completed an approved basic training for ships operating in polar waters and meet the standard of competence specified in section A-V/4, paragraph 1 of the STCW Code.

3 Masters and chief mates on ships operating in polar waters, shall hold a certificate in advanced training for ships operating in polar waters, as required by the Polar Code.

4 Every candidate for a certificate in advanced training for ships operating in polar waters shall:

.1 meet the requirements for certification in basic training for ships in polar waters; and

.2 have at least two (2) months of approved seagoing service in the deck department, at management level or while performing watchkeeping duties in an operational level, within polar waters or other equivalent approved seagoing service; and

.3 have completed approved advanced training for ships operating in polar waters and meet the standard of competence specified in section A-V/4, paragraph 2 of the STCW Code.

5 Administrations shall ensure that a Certificate of Proficiency is issued to seafarers, who are qualified in accordance with paragraphs 2 or 4 as appropriate.

Transitional provisions

6 Until [entry into force date + 2 years], seafarers who commenced approved seagoing service in polar waters prior to [the date of entry into force of this section] shall be able to establish that they meet the requirements of paragraph 2 by:

.1 having completed approved seagoing service on board a ship operating in polar waters or equivalent approved seagoing service, performing duties in the deck department at the operational or management level, for a period of at least three months in total during the preceding five years; or

.2 having successfully completed a training course meeting the training guidance established by the organization for ships operating in polar waters.¹

7 Until [entry into force date + 2 years], seafarers who commenced approved seagoing service in polar waters prior to [the date of entry into force of this section] shall be able to establish that they meet the requirements of paragraph 4 by:

.1 having completed approved seagoing service on board a ship operating in polar waters or equivalent approved seagoing service, performing duties in the deck department at management level, for a period of at least three months in total during the preceding five years; or

.2 having successfully completed a training course meeting the training guidance established by the organization for ships operating in polar waters² and having completed approved seagoing service on board a ship operating in polar waters or equivalent approved seagoing service, performing duties in the deck department at the management level, for a period of at least two months in total during the preceding five years.

¹ Refer to Section B-V/g of the STCW Code.

² Refer to Section B-V/g of the STCW Code.

2.2.1 Chapter I of the STCW Code- General Provisions will be amended by adding a new paragraph 4 in section A-I/11 as follows:

4. Continued professional competence for masters and officers on board ships operating in polar waters as required under regulation I/11 shall be established by:

- .1 approved seagoing service, performing functions appropriate to the certificate held, for a period of at least two months in total during the preceding five years; or
- .2 having performed functions considered to be equivalent to the seagoing service required in paragraph 4.1; or
- .3 passing an approved test; or
- .4 successfully completing an approved training course or courses

2.2.2 CHAPTER V of the STCW Code– Special Training Requirements For Personnel On Certain Types Of Ships will be amended by adding a new section A-V/4 after existing section A-V/2 the existing as follows:

Section A-V/4

Mandatory minimum requirements for the training and qualifications of masters and deck officers on ships operating in polar waters

1 Every candidate for certification in basic training for ships operating in polar waters shall be required to:

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/4-1; and
- .2 provide evidence of having achieved:
 - .1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/4-1, and
 - .2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in column 3 and 4 of table A-V/4-1.

2 Every candidate for certification in advanced training for ships operating in polar waters shall be required to:

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/4-2; and
- .2 provide evidence of having achieved:
 - .1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/4-2, and
 - .2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in column 3 and 4 of table A-V/4-2.

3 STANDARDS OF COMPETENCE

3.1 Standard of competence for basic training in Polar Code Operations

3.1.1 Masters, chief mates, and officers in charge of a navigation watch engaged on ships operating in polar waters, as required by the Polar Code should, before being assigned to shipboard duties:

- .1 receive basic training in Polar Code Operations meeting the standards of competence for ships operating in polar waters in table A-V/4-1 below.
- .2 be required to provide documentary evidence of having achieved the required standard of competence to undertake their duties and responsibilities through: demonstration of competence in accordance with the methods and criteria for evaluating competence

Table A-V/4-1

Specification of minimum standard of competence in basic training for ships operating in polar waters

Column One Competence	Column Two Knowledge, Understanding, proficiency	Column Three Methods for demonstrating competence	Column Four Criteria for evaluating competence
Contribute to safe operation of vessels operating in polar waters	<p><i>Basic knowledge of ice characteristics and areas where different type of ice can be expected in the area of operation:</i></p> <ol style="list-style-type: none"> 1. Ice physics, terms, formation, growth, aging and stage of melt; 2. Ice types and concentrations; 3. Ice pressure and distribution; 4. Friction from snow covered ice. 5. Implications of spray-icing; danger of icing up, precautions to avoid icing up and options during icing up; 6. Ice regimes in different regions. Significant differences between the Arctic and the Antarctic, first year and multiyear ice, sea ice and land ice; 7. Use of ice imagery to recognize 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Identification of ice properties and their characteristics of relevance for safe vessel operation.</p> <p>Information obtained from ice information and publications is interpreted correctly and properly applied.</p> <p>Use of visible and infrared satellite images. Use of egg charts. Coordination of meteorological and oceanographic data with ice data.</p> <p>Measurements and observations of weather and ice conditions are accurate and appropriate for safe passage</p>

	<p>consequences of rapid change in ice and weather conditions; 8. Knowledge of ice sky and water blink; 9. Knowledge of differential movement of icebergs and pack ice; 10. Knowledge of tides and currents in ice; 11. Knowledge of effect of wind and current on ice.</p>		
	<p><i>Basic knowledge of vessel performance in ice and low air temperature:</i></p> <ol style="list-style-type: none"> 1. Vessel characteristics; 2. Vessel types, hull designs; 3. Engineering requirements for operating in ice; 4. Ice strengthening requirements; 5. Limitations of ice-classes; 6. Winterization and preparedness of vessel, including deck and engine; 7. Low-temperature system performance; 8. Equipment and machinery limitation in ice condition and low air temperature; 9. Monitoring of ice pressure on hull; 10. Sea suction, water intake, superstructure insulation and special systems. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Identification of vessel characteristics and limitations under different ice conditions and cold environmental impact.</p> <p>Procedures are made for risk assessment before entering ice.</p> <p>Awareness of fresh water ballast freezing in ballast tanks.</p> <p>Actions are carried out in accordance with accepted principles and procedures to prepare the vessel and the crew for operations in ice and low air temperature.</p> <p>Communications are clear, concise and effective at all times in a seamanlike manner.</p>
	<p><i>Basic knowledge and ability to operate and</i></p>	<p>Examination and assessment of</p>	<p>Use Polar Code and Polar Water</p>

	<p><i>manoeuvre a ship in ice:</i></p> <ol style="list-style-type: none"> 1. Safe speed in the presence of ice and icebergs; 2. Ballast tank monitoring; 3. Cargo operations in the polar waters; 4. Awareness of engine loads and cooling problems; 5. Safety procedures during ice transit. 	<p>evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training 3. ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Operations Manual to correctly determine the recommended procedures to load/offload cargo/passengers in low temperatures, monitor ballast water for icing, monitor engine temperatures, anchor watch concerns in ice, and transit near ice.</p> <p>Interpretation and analysis of information from radar is in accordance with sharp lookout and with special caution regarding identification of dangerous ice features.</p> <p>Information obtained from navigational charts, including electronic charts, and publications is relevant, assessed, interpreted correctly and properly applied. The primary method of position fixing is frequent and the most appropriate for the prevailing conditions and routing through ice.</p> <p>Performance checks and tests of navigation and communication systems comply with recommendations for high latitude and low air temperature operation.</p>
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<p>Monitor and ensure compliance with legislative requirements</p>	<p><i>Basic knowledge of regulatory considerations:</i></p> <ol style="list-style-type: none"> 1. Antarctic Treaty and the Polar Code; 2. Accident reports concerning vessels in polar waters; 3. IMO standards for operation in remote areas; 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Locate and apply relevant portion of the Polar Water Operational Manual</p> <p>Communication is in accordance with local/regional and international standard procedures.</p> <p>Legislative requirements related to relevant regulations, codes and practices are identified.</p>
<p>Apply Safe working practices respond to emergencies</p>	<p><i>Basic knowledge of crew preparation, working conditions and safety:</i></p> <ol style="list-style-type: none"> 1. Recognize limitations of search and rescue readiness and responsibility, including radio area A4 and its SAR communication facility limitation; 2. Awareness of contingency planning; 3. How to establish and implement safe working procedures for crew specific to polar environments such as low temps, ice covered surfaces , personal protective equipment, use of buddy system, and working time limitations; 4. Recognize dangers when crews are exposed to low temperatures; 5. Human factors including cold 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience 3. approved simulator training, where appropriate 4. approved training 	<p>Identification and initial actions on becoming aware of hazardous situations for vessel and individual crew members.</p> <p>Actions are carried out in accordance with Polar Water Operational Manual, accepted principles and procedures to ensure safety of operations and avoid pollution to the marine environment.</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times.</p> <p>Response actions are in accordance with established plans and are appropriate to the situation and nature of the emergency.</p>

	<p>fatigue, medical-first aid aspects, crew welfare;</p> <p>6. Survival requirements including the use of personal survival equipment and group survival equipment;</p> <p>7. Awareness of the most common hull and equipment damages and how to avoid these;</p> <p>8. Superstructure-deck icing, including effect on stability and trim;</p> <p>9. Prevention and removal of ice including the factors of accretion;</p> <p>10. Recognize fatigue problems due to noise and vibrations;</p> <p>11. Identify need for extra resources, such as bunker, food, and extra clothing.</p>		<p>Correctly identifies and applies legislative requirements related to relevant regulations, codes and practices.</p> <p>Appropriate safety and protective equipment is correctly used</p> <p>Defects and damages are detected and properly reported</p>
<p>Ensure compliance with pollution-prevention requirements and prevent environmental hazards</p>	<p><i>Basic knowledge of environmental factors and regulations:</i></p> <p>1. Identify particular sensitive sea areas regarding discharge;</p> <p>2. Identify areas where shipping is prohibited or should be avoided;</p> <p>3. Special areas in MARPOL;</p> <p>4. Recognize limitations oil-spill equipment;</p> <p>5. Plan for coping with increased volumes of garbage, bilge water, sewage,</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>1. approved in-service experience</p> <p>2. approved training ship experience</p> <p>3. approved simulator training, where appropriate</p> <p>4. approved training</p>	<p>Legislative requirements related to relevant regulations, codes and practices are identified.</p> <p>Correctly identify/select the limitations on vessel discharges contained in the Polar Code.</p> <p>Correctly applies Polar Water Operations Manual/ Waste Management Plan to determine limitations on vessel discharges and plans</p>

	etc.; 6. Lack of infrastructure. 7. Oil spill and pollution in ice, including consequences;		for storing waste Identify references that detail areas to be avoided, such as wild life refuge, ecological heritage parks, migratory pathways, etc. (MARPOL, Antarctic Treaty, etc.) Identify factors that must be considered to manage waste stream during Polar voyages
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3.2 Standard of competence for advanced training in Polar Code Operations

3.2.1 Masters and chief mates engaged on ships operating in polar waters, as required by the Polar Code should, before being assigned to shipboard duties:

.1 receive basic training in Polar Code Operations as described in 3.1.1 above and:

.2 receive advanced training Polar Code Operations meeting the standards of competence for ships operating in polar waters in table A-V/4-2 below.

.3 be required to provide documentary evidence of having achieved the required standard of competence to undertake their duties and responsibilities through: demonstration of competence in accordance with the methods and criteria for evaluating competence

Table A-V/4-1

Specification of minimum standard of competence in advanced training for ships operating in polar waters

Column One	Column Two	Column Three	Column Four
Competence	Knowledge, Understanding, proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a voyage in Polar Waters	<i>Knowledge of voyage planning and reporting:</i> 1. Information sources;	Examination and assessment of evidence obtained from one or more of the following:	The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe

	<p>2. Reporting regimes in polar waters; 3. Development of safe routing and passage planning to avoid ice where possible; 4. Ability to recognize the limitations of hydrographic information and charts in polar regions and whether the information is suitable for safe navigation; 5. Passage planning deviation and modification for dynamic ice conditions;</p> <p><i>Knowledge of equipment limitations:</i></p> <p>1. Understand and identify hazards associated with limited terrestrial navigational aids in polar regions; 2. Understand and recognize high latitude errors on compasses; 3. Understand and identify limitations in discrimination of radar targets and ice-features in ice-clutter; 4. Understand and recognize limitations of electronic positioning systems at high latitude; 5. Understand and recognize limitations in nautical charts and pilot descriptions; 6. Understand and recognize limitations in communication</p>	<p>1. approved in-service experience 2. approved training ship experience. 3. approved simulator training, where appropriate. 4. approved training</p>	<p>conduct of the voyage.</p> <p>The reasons for the planned route are supported by facts obtained from relevant sources and publications, statistical data and limitations of communication and navigational systems.</p> <p>Voyage plan correctly identified relevant polar regulatory regimes and need for ice-pilotage or/and icebreaker assistance.</p> <p>All potential navigational hazards are accurately identified.</p> <p>Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment.</p>
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	systems.		
Manage the safe operation of vessels operating in polar waters	<p><i>Knowledge and ability to operate and manoeuvre a ship in ice:</i></p> <ol style="list-style-type: none"> 1. Preparation and risk assessment before approaching ice, including presence of icebergs, and taking into account wind, darkness, swell, fog and pressure ice; 2. Conduct communications with an icebreaker and other vessels in the area and with Rescue Coordination Centres 3. Understand and describe the conditions for the safe entry and exit to and from ice or open water, such as leads or cracks, avoiding icebergs and dangerous ice conditions and maintaining safe distance to icebergs 4. Understand and describe ice ramming procedures – including double and single ramming passage; 5. Recognize and determine the need for bridge watch team augmentation based upon environmental conditions, vessel equipment and vessel ice class; 6. Recognize the presentations of the various ice conditions as they appear on radar. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience. 3. approved simulator training, where appropriate. 4. approved training 	<p>All decisions concerning navigating in ice are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while navigating within a polar waters.</p> <p>Demonstrate communications skills, request ice routing, plot and commence voyage through ice.</p> <p>All potential ice hazards are correctly identified.</p> <p>All decisions concerning berthing anchoring, cargo and ballast operations are based on a proper assessment of the ships manoeuvring and engine characteristics and the forces to be expected and in accordance with the Polar Code guidelines and applicable international agreements.</p> <p>Safely demonstrate progression of a vessel through ice, manoeuvring vessel through moderate ice concentration (range of 1/10 to 5/10).</p> <p>Safely demonstrate progression of a</p>

	<p>7. Understand icebreaker convoy terminology, and communications, and take icebreaker direction and move in convoy;</p> <p>8. Understand methods to avoid besetment and to free beset vessel, and consequences of besetment;</p> <p>9. Understand towing and rescue in ice, including risks associated with operation;</p> <p>10. Handling ship in various ice concentration and coverage, including risks associated with navigation in ice, and turning-backing; avoidance; etc.;</p> <p>11. Use of different type of propulsion and rudder systems, including limitations to avoid damage when operating in ice;</p> <p>12. Use of heeling and trim-systems.; hazards in connection with ballast and trim in relation with ice;</p> <p>13. Docking and undocking in ice covered waters, including hazards associated with operation and the various techniques to safely and undock in ice covered waters;</p> <p>14. Anchoring in ice, including the dangers to anchoring system – ice accretion to hawse pipe and ground</p>		<p>vessel through ice, manoeuvring vessel through dense ice concentration (range of 6/10 to 10/10).</p> <p>Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operation and avoid pollution of the marine environment.</p> <p>Safety of navigation is maintained through sailing strategy and adjustment of ship's speed and heading through different types of ice.</p> <p>Actions are understood to permit use of anchoring system in cold temperatures</p> <p>Actions are carried out in accordance with accepted principles and procedures to prepare for icebreaker towing, including notch towing.</p>
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	<p>tackle; 15. Recognize conditions which impact polar visibility and may give indication of local ice and water conditions, including sea smoke, blink and refraction.</p>		
<p>Maintain safety of the ship's crew and passengers and the operational condition of life-saving, firefighting and other safety systems</p>	<p><i>Knowledge of safety:</i></p> <ol style="list-style-type: none"> 1. Understand the procedures and techniques for abandoning the ship and survival on the ice and in ice-covered waters; 2. Recognize limitations on fire-fighting systems and life saving appliances due to low air temperatures, 3. Understand unique concerns in conducting emergency drills in ice and low temperatures; 4. Understand unique concerns in conducting emergency response in ice and low air and water temperatures. 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> 1. approved in-service experience 2. approved training ship experience. 3. approved simulator training, where appropriate. 4. approved training. 	<p>Response measures are in accordance with established plans and procedures, and are appropriate to the situation and nature of the emergency.</p>