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SUB-COMMITTEE ON STANDARDS OF  
TRAINING AND WATCHKEEPING  
33rd session  
Agenda item 10

STW 33/10  
8 October 2001  
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**DEVELOPMENT OF GUIDELINES FOR SHIPS OPERATING  
IN ARCTIC ICE-COVERED WATERS**

**Note by the Secretariat**

**SUMMARY**

**Executive summary:** This document contains the relevant parts of the draft guidelines for consideration of the Sub-Committee as requested by DE 44

**Action to be taken:** Paragraph 3

**Related documents:** DE 44/19, annexes 7 and 8

1 DE 44 agreed a draft MSC/MEPC circular on Guidelines for ships operating in Arctic ice-covered waters. DE 44 also identified parts of the draft Guidelines to be referred to other Sub-Committees for consideration before finalising the text to be submitted to the Committees for approval.

2 Attached at annex are the parts of the guidelines as considered relevant to the work of the Sub-Committee by DE 44.

**Action requested of the Sub-Committee**

3 The Sub-Committee is invited to consider the information provided and take action as appropriate.

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**ANNEX****PARTS OF THE DRAFT GUIDELINES ON SHIPS OPERATING IN ARCTIC  
ICE-COVERED WATERS REFERRED TO STW 33 BY DE 44****GUIDE**

**G-3.10** "Ice Navigator" means any individual who, in addition to being qualified under the STCW Convention, is specially trained and otherwise qualified to direct the movement of a ship in ice-covered waters.

**CHAPTER 1****GENERAL****1.2 Ice navigator**

**1.2.1** All ships operating in Arctic ice-covered waters should carry at least one Ice Navigator qualified in accordance with Chapter 14.

**1.2.2** Continuous monitoring of ice conditions by an Ice Navigator should be available at all times while the ship is underway and making way in the presence of ice.

**PART C****OPERATIONAL****CHAPTER 13****OPERATIONAL GUIDELINES****13.1 Documentation**

**13.1.1** All ships operating in Arctic ice-covered waters should carry on board at all times an operating manual and training manual for all ice navigators on board the ship.

**13.2 Ship operational control**

**13.2.1** The ship should not be intentionally operated outside the worst intended conditions and design limitations.

### **13.3 Operating and training manuals**

#### **Operating manual**

**13.3.1** The operating manual, or supplementary manual in the case of ships not normally operating in Arctic ice-covered waters, should contain at least the following information on issues directly related to operations in such waters. With respect to contingency planning in the event that the ship suffers ice damage, the manual should conform to guidelines developed by the Organization\*:

#### **Normal operation**

- .1 principal particulars of the ship;
- .2 loading procedures and limitations including any applicable prohibitions against carrying pollutants in tanks and compartments against the hull envelope, maximum operational weight, position of centre of gravity and distribution of load necessary for operation in Arctic ice-covered waters;
- .3 acknowledgment of changes in standard operating procedures for radio equipment and navigational aids applicable to Arctic operations;
- .4 information regarding the handling of the ship as determined in accordance with Chapter 16 of these Guidelines (Environmental protection and damage control);
- .5 maximum towing speeds and towing loads where applicable;

#### **Risk management**

- .6 procedures for checking the integrity of hull structure;
- .7 description and operation of fire detection and fire-extinguishing equipment in a Arctic environment; and

For Polar Class ships, the operating manual should include the following supplementary information, in clearly defined chapters specified by the Administration:

- .8 operating limitations for the ship and essential systems in anticipated ice conditions and temperatures;
- .9 details arising from the standards of Chapter 3 of these Guidelines (Subdivision and Stability) likely to be of direct practical use to the crew in an emergency;
- .10 passage planning procedures accounting for anticipated ice conditions;

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\* Refer to resolution A.852(20) Guidelines for the Structure of an Integrated System of Contingency Planning for Shipboard Emergencies.

- .11 deviations in standard operating procedures associated with operation of propulsion and auxiliary machinery systems, remote control and warning systems and electronic and electrical systems made necessary by operations in Arctic ice-covered waters;
- .12 deviations in standard damage control procedures made necessary by operations in Arctic ice-covered waters; and
- .13 evacuation procedures into water, onto ice, or into a combination of the two, with due regard to Chapter 11 of these Guidelines.

**13.3.2** Regarding information on machinery or system failures, guidance should take into account the results of any risk or failure analysis reports developed during the ship design.

### **Training manual**

**13.3.3** The training manual should cover all aspects of ship operation in Arctic ice-covered waters listed below plus other related information considered necessary by the Administration:

- .1 summary of the Guidelines for ships operating in Arctic ice-covered waters;
- .2 ice recognition;
- .3 navigation in ice; and
- .4 escorted operation.

Instructions for drills and emergency instructions as detailed in paragraph 13.4 should be incorporated as annexes to the manual.

**13.3.4** The Company should ensure that any additional documentation referenced in the training manual and required to provide a full understanding of its contents is on board the ship for all operations in Arctic ice-covered waters.

## **13.4 Drills and emergency instructions**

**13.4.1** On board instruction and operation of the ship's evacuation, fire and damage control appliances and systems should include appropriate cross training of crew members with appropriate emphasis to changes to standard procedure made necessary by operations in Arctic ice-covered waters.

### **13.4.2 Evacuation**

**13.4.2.1** Evacuation drill scenarios should be varied so that different emergency conditions are simulated, including abandonment into the water, onto the ice, or a combination of the two.

**13.4.2.2** Each evacuation craft drill should include:

- .1 exercises in passenger control in cold temperatures as appropriate;

- .2 checking that all personnel are suitably dressed;
- .3 donning of immersion suits or thermal protective clothing by appropriate crew members;
- .4 testing of emergency lighting for assembling and abandonment; and
- .5 giving instructions in the use of the ship's life-saving appliances and in survival at sea, on the ice or a combination of both.

**13.4.2.3** Rescue boat drills should be conducted as follows:

- .1 As far as is reasonable and practicable, rescue boats should be launched each month as part of the evacuation drill with their assigned crew aboard and manoeuvred in the water, with due consideration of the dangers of launching into Arctic ice-covered waters if applicable.
- .2 If rescue boat launching drills are carried out with the ship making headway, such drills should be practiced in sheltered waters only and under the supervision of an officer experienced in such drills.\*

**13.4.2.4** Individual instructions may cover different parts of the ship's life-saving system, but all the ship's life-saving equipment and appliances should be covered within any period of one month on passenger ship and two months on cargo ship. Each member of the crew should be given instructions which should include but not necessarily be limited to:

- .1 problems of hypothermia, first-aid treatment of hypothermia and other appropriate first-aid procedures; and
- .2 special instructions necessary for use of the ship's life-saving appliances in severe weather and severe sea conditions on the ice or in a combination of water and ice cover.

**13.4.3 Fire**

**13.4.3.1** Fire drill scenarios should vary each week so that emergency conditions are simulated for different ship compartments, with appropriate emphasis on those changes to standard procedure made necessary by operations in Arctic ice-covered waters and low temperatures.

**13.4.3.2** Each fire drill should include elements required by the SOLAS Convention plus additional elements made necessary by operation in an Arctic environment.

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\* Refer to resolution A.624(15) Guidelines for Training Crews for the Purpose of Launching Lifeboats and Rescue Boats from Ships Making Headway Through the Water.

#### **13.4.4 Damage control**

**13.4.4.1** Damage control drill scenarios should vary each week so that emergency conditions are simulated for different damage conditions with appropriate emphasis to those conditions resultant from operations in Arctic ice-covered waters.

#### **13.4.5 Survival kits**

**13.4.5.1** Where fitted, the master should ensure that sufficient PSKs and GSKs are available, in full working order, and ready for immediate use, to meet the standards set forth in paragraph 11.2.4.

**13.4.5.2** The master should keep spare personal survival equipment on board for the purpose of providing replacements for missing or damaged items of equipment in those personal survival kits issued to the complement. In addition, a number of sewing kits and replacement parts (buttons, boot laces etc.) should be kept on board for the purpose of minor repair to personal survival kit items of clothing.

**13.4.5.3** Group survival kit inspections should be carried out no less frequently than on an annual basis at the beginning of each operating season.

## **CHAPTER 14**

### **CREWING**

#### **14.1 General**

**14.1.1** The crewing of all ships in Arctic ice-covered waters should take account of the provisions listed in this chapter, and also of the relative lack of shore and support infrastructure which may be available to assist in any operations.

**14.1.2** Ice navigators should be provided as noted in chapter 1.

**14.1.3** As many as possible of the ship's officers and crew should be made familiar with cold weather survival by training or self-study of course material or publications addressing the measures set forth in 13.4.

**14.1.4** As many as possible of the ship's deck and engine officers should be trained in ship operations in ice-covered waters.

#### **14.2 Ice navigator qualifications and training**

**14.2.1** The ice navigator should have documentary evidence of having satisfactorily completed an approved training program in ice navigation. Such a training program should provide knowledge, understanding and proficiency required for operating a ship in Arctic ice-covered waters, including recognition of ice formation and characteristics; ice indications; ice manoeuvring; use of ice forecasts, atlases and codes; hull stress caused by ice; ice escort operations; ice-breaking operations; and effect of ice accretion on vessel stability.

### **14.3 Supplementary provisions**

**14.3.1** Where firearms are carried in accordance with paragraph 11.4.2, a minimum of two crewmembers should be cognizant of current firearm regulations and guidelines and be trained in the use of shotguns or hunting rifles.

**14.3.2** A minimum of two crew members should be trained in the use of low frequency radio equipment where fitted.

## **CHAPTER 15**

### **EMERGENCY EQUIPMENT**

**15.1.3** Crews operating in Arctic ice-covered waters should be provided with appropriate equipment and training to safely evacuate an individual in a medical emergency from the ship.

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