

GUIDANCE NOTE 02/2024 (Rev. 01)

OPERATION OF SHIPS AND EQUIPMENT IN COLD CLIMATES AND LOW TEMPERATURES

To: SURVEYORS, CLASSIFICATION SOCIETIES, OWNERS, COMPANY'S, MASTER'S AND CHIEF ENGINEERS ON ALL CAYMAN ISLANDS SHIPS AND YACHTS.

1. BACKGROUND

1.1 This Guidance Note is being issued following a Port State Control detention of a Cayman Islands' vessel whilst operating in low temperatures, outside of Polar and Arctic regions. The deficiencies found by the PSCO included: Frozen lifeboat fuel, frozen rescue boat outboard propeller in testing barrel and frozen rescue boat davit lube oil.

SOLAS Chapter III, Regulation 20.2 states: ‘

“Before the ship leaves port and at all times during the voyage, all life-saving appliances shall be in working order and ready for immediate use.”

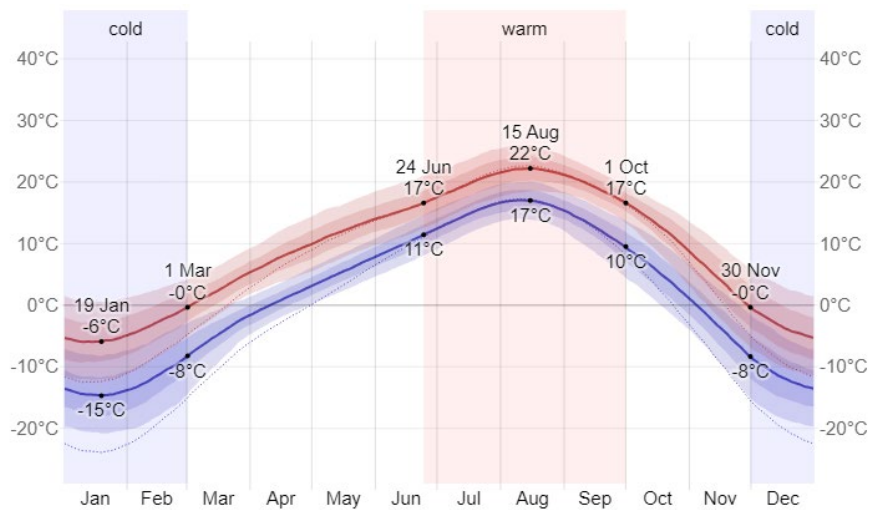
Operational readiness of a ship's equipment and systems is not limited by weather criterion, and they should be maintained such that they are readily available in all expected operating conditions.

1.2 Ships operating in cold climates and temperatures below the normal environmental design temperature of their equipment or systems (whether inside or outside Polar regions), may experience freeze due to ice accretion from atmospheric icing or sea spray, or due to freezing of liquid within a system. Additionally, cold dense air may affect the running of engines or may drain batteries. Protection measures and enhanced operational procedures are necessary to ensure that equipment and systems are suitably protected from harsh conditions and in order that the ship can continue to operate normally in such conditions.

1.3 Operational modes may vary and mild, moderate or extensive operational scenarios in extreme low temperatures may need to be considered. Due planning and consideration of the effects should follow accordingly. For example:

- Short duration transits in low temperatures (ships loading/discharging in low temperatures then sailing to discharging/loading in warmer regions)
- Seasonal duration in cold temperatures (ships operating continuously in low temperature regions during the winter months)
- Prolonged duration in extreme low temperatures, (ships operating in Polar, Arctic or Antarctic regions).

1.4 Air temperatures vary seasonally but may also become extreme in winter outside polar regions, affecting visiting ships, their systems and equipment's normal design environment operating temperatures, for example:



Climate in Nakhodka, Russia © [WeatherSpark.com](https://www.weatherSpark.com)

2. REGULATORY REQUIREMENTS

2.2 SOLAS XIV and the “International Code for Ships Operating In Polar Waters” (Polar Code) “*applies to ships operating in polar waters, certified in accordance with SOLAS Chapter I.*” Ships operating in these regions should be surveyed and certificated accordingly and the condition of the ship is thereby required to be maintained. Additionally, following 2018 amendments, Ship’s crew should hold enhanced training and certification in accordance with STCW V/4 “Training and Qualifications of Masters and Deck Officers on Ships Operating in Polar Waters” and this is subject to the associated syllabus which includes winterization.

2.3 Regardless of plying region, SOLAS Chapter IX and the ISM Code is mandatory for all passenger ships including passenger high-speed craft, oil tankers, chemical tankers, gas carriers, bulk carriers and cargo craft, other cargo ships of 500 gross tonnage and upwards, and mobile offshore drilling units. Yachts of 500 gross tonnage and upwards are also required to apply the ISM Code under equivalent REG Yacht Code certification. Cayman Islands yachts below 500 gross tonnage, are further required to apply safety management in accordance with REG YC A or REG YC B provisions as applicable therein. Accordingly, if applicable, the risks to ships plying in cold climates where the normal design environment operating temperature of their equipment or systems may be affected, should be formally considered within the Safety Management System.

2.4 In consideration of the effect of cold climates and low temperature operation generally, Classification Societies may additionally provide operators with ‘optional’ rules and notation associated with different classes of ‘winterization’ of ship’s systems and equipment. Operators plying in cold climates and low temperatures, are additionally recommended to review their options for formalizing winterization techniques and oversight by Class accordingly, in support of 2.3.

3. SCOPE OF SAFETY MANAGEMENT SYSTEM CONSIDERATIONS

3.1 The ISM Code requires the provision of safe practices and adequate risk assessment in fulfilling compliance with mandatory rules and regulations, and to take account of relevant standards recommended by classification societies (e.g. winterization standards). This is applicable to all ships to which the ISM Code applies.

3.2 In accordance with the ISM Code therefore, the Company and Master are required to formally pre-consider the effects of cold climates and temperatures below the normal environmental design temperature of their equipment or systems, if likely to ply in areas where the climate may produce these hazards. For such cases where this is likely to occur, and in accordance with the Code, due additional consideration should therefore include in the SMS:

- Suitable and sufficient Risk Assessment and mitigation of the effects of low temperature (carried out in accordance with the Code of Safe Working Practices for Merchant Seafarers (CoSWP), Chapter 1).
- Procedures, plans and instructions, including checklists as appropriate, for key shipboard operations likely to be affected by low temperature (e.g. bridge, voyage planning deck, and engineering operations).

- Procedures to ensure that the ship and its equipment are maintained in conformity with the provisions of the relevant rules and regulations and with any additional requirements which may be established by the Company (i.e. that all relevant equipment and system operation in low temperature can be achieved).
- Equipment and technical systems the sudden operational failure of which may result in hazardous situations (i.e. where low temperature may cause system or equipment failure).
- Potential emergency shipboard situations, and the procedures to respond to them [in low temperatures, effect of temperature on firefighting systems etc.].
- Any additional training which may be required in support of the SMS (e.g. winterization).

3.3 Revised SMS procedures, plans, instructions and training should be clearly documented within the SMS for cold climate and low temperature operation and be adopted accordingly.

4. SCOPE OF CONSIDERATION FOR SHIP AND EQUIPMENT WINTERIZATION

4.1 As a minimum, the following areas on board should be considered in (3) for effects on the operation and necessary winterization:

- Exposed decks
- Deck Machinery
- Cargo Handling Systems
- Hull piping systems
- Sea inlets (see MSC/Circ.504)
- Fire main ; ensure this is drained down on outside decks via the lowest connection. Even in Northern Europe during winter, fire main lines have been found to be frozen.
- Firefighting systems (especially where water-based mediums are used)
- Navigation systems and equipment
- RADARs
- Access arrangements (handrails, doors and hatches, stairs, shelters)
- Main propulsion and auxiliary engines
- Auxiliary machinery systems and associated working areas.
- Intakes and exhausts
- Wheelhouse windows and wipers
- Anchoring/ Mooring equipment, Deck Cranes and associated working areas.
- Fuels, Oils and Lubricants
- Electrical installations
- Survival craft (Lifeboat& rescue boat incl. fuels, oil and water & batteries, liferafts etc.). Lifeboat engines to have suitable low temp fuel and bled through ready for service.
- Life Saving Appliance launching appliances. Hydraulic lines may have water contamination, checks may be completed at filter drains if practicable.
- Air conditioning in internal spaces and compartments
- Water Services and piping systems
- Desiccant should be checked and replaced as required for electrical control boxes/cabinets.
- Tanks and contents
- Ice removal and prevention methods
- Tools for ice removal and prevention
- Type specific arrangements
- Personal Protective Equipment

4.2 Manufacturer's equipment manuals should be consulted to determine the normal operational range of equipment and systems, and the level of winterization necessary.

4.3 Additional protective arrangements may also include, but not be limited to additional:

- Heating (space and dedicated arrangements for equipment/systems).
- Ice removal equipment.
- Covers.

- Drainage.
- Insulation.
- Selection of materials.
- Selection of lubricants, oils, hydraulics and greases.

5.0 BEST PRACTICE APPLICATION OF LEGISLATION AND WINTERIZATION RULES TO SHIPS OPERATING IN LOW TEMPERATURES

5.1 To fulfil ISM Code requirements, reference should be made to the classification society's rules and standards regarding "winterization", and 'due diligence' consideration made of this regardless of whether notation is formally applied as an 'option'. It is strongly recommended that class winterization rules are followed as far as reasonably practicable by all ships plying in cold climates and low temperatures. Procedures, plans, instruction and training should be clearly documented within the SMS.

5.2 Instructions for winterization contained in manufacturer manuals should also be adopted.

5.3 The extent of winterization should take full account of short duration, seasonal duration or prolonged duration plying scenarios in the region affected by low temperature climate, and the relevant rule standard applicable.

5.4 Alternatively winterization rules may be formally adopted by application of class notation, through the Recognized Organization.

5.5 Consideration should also be given to training of crews in winterization techniques, where this has not otherwise been provided, in accordance with the ISM Code requirement.

5.6 Additionally, ships plying in Polar and Antarctic regions, to which SOLAS XIV is mandatory, should comply with the above and with part I-A of the Polar Code and that of SOLAS regulations I/7, I/8, I/9, and I/10, as applicable. Crews should hold relevant enhanced training and certification in accordance with STCW V/4 "Training and Qualifications of Masters and Deck Officers on Ships Operating in Polar Waters."