Republic of the Marshall Islands

MARITIME ADMINISTRATOR

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MARINE SAFETY ADVISORY No. 05-19

To: **Owners/Operators, Masters, Nautical Inspectors, Recognized Organizations**

Subject: **SHIPS OPERATING IN THE WINTER MONTHS OF THE ST. LAWRENCE SEAWAY (EASTERN CANADA)**

Date: **31 January 2019**

Marshall Islands flagged ships operating in the extreme cold winter climate of the Canadian Gulf of St. Lawrence, St. Lawrence River, and St. Lawrence Seaway are reminded of the importance of adequate preparation prior to and during transiting these waters. Weather related deficiencies such as frozen water within fire lines and congealed fuel preventing the operation of emergency generators have caused unsafe conditions and resulted in International Maritime Organization reportable detentions. Canadian regulations require that vessels navigating in ice protect crew from frigid temperatures, prevent vital system malfunctions, and prevent icing of sea chests. There is also a phenomenon known as "Frazil Ice" which is loose, randomly oriented, plate or ice crystals formed in super-cooled turbulent water. Forming at air temperatures lower than −6 °C (21 °F), frazil ice is notorious for blocking water intakes and clogging sea water strainers which may lead to a sudden and unexpected black-out condition.

Masters, Officers, and all Crew Members should take note of "***Mandatory Winter Navigation Information on Sea Water Cooling Types - Canadian Regulations Concerning Ships Operating in Ice-Covered Waters"*** (Transport Canada - November 21, 2018). This document includes:

- Canadian Regulations concerning ships operating in ice covered waters
- Information about mandatory and recommended publications to be onboard during winter transit in Canadian waters
- Pre-arrival information requested concerning the arrangement and type of sea water cooling system installed aboard the ship
- Information on receiving advisories and points of contact for ships bound for the St. Lawrence Seaway
- Marine Safety Checklist for operating in ice covered waters

The document is attached to this Advisory for your ease of reference.

This MSA expires one (1) year after its issuance, unless otherwise noted, extended, superseded, or revoked.

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MANDATORY WINTER NAVIGATION INFORMATION ON SEA WATER COOLING TYPES

Date: 2018-11-21
Y M D

CANADIAN REGULATIONS CONCERNING SHIPS OPERATING IN ICE-COVERED WATERS

Enforcement of the following requirement for ships transiting West of Les Escoumins pilot station will be in effect as of:

December 10th, 2018 at 18:00 (local time)

The Gulf of St-Lawrence and the St-Lawrence River provide unique conditions for navigation during winter months.

Canadian regulations require that all vessels navigating in ice be equipped with a system to prevent icing and choking of sea chests and to maintain an essential cooling water supply. (Ref: Canadian *Marine Machinery Regulations – SOR/90-264)*. Icing/blockage could occur anytime between December and March. It is hard to predict when it becomes in force as weather is unpredictable. When water temperature drops below 0 deg C chances of encountering frazil ice may arise.

If your vessel is not properly equipped, Owner / Authorized Representative will have to foresee the installation of a re-circulating sea water cooling system. The system is to be approved by Class / RO.

Should underwater modifications be required, permanent installations may be postponed until next scheduled dry docking. Meanwhile, the use of a provisional sea water cooling system may be accepted by Canadian Administration, if installed under Class / RO's supervision. Any ships returning that have had a previous temporary recirculation system installed (using flexible hoses and ball valves) require again the approval from Class for winter 2018/2019 and this is to be indicated in the message sent to our office.

Any vessel experiencing difficulties with the SW cooling system will have to take immediate measures in order to remedy the problem. If the problem persists, the Master may be directed to seek all necessary assistance to proceed to a place of refuge through the safest route provided by Canadian Coast Guard Vessel Traffic Services (CCG VTS).

Master / Owner(s) will then have to contact Class / RO in order to seek approval of any modification that may be required to the vessel or its equipment in order to proceed safely to destination port.

Failure from the Master to take appropriate action is a violation of the *Canada Shipping Act, 2001*.

There is no other requirement as per "ice class" vessel. Nevertheless proper and ship specific ISM procedures for navigation in cold weather climates must be in place and strictly followed and understood by all officers and crew members. You could refer to the **MARINE SAFETY GUIDE CHECKLIST FOR OPERATION IN ICE COVERED WATERS** found at the end of this document.

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INFORMATION ABOUT MANDATORY AND RECOMMENDED PUBLICATIONS TO BE ONBOARD DURING WINTER TRANSIT IN CANADIAN WATERS

The **following documents must be onboard** under the ***Charts and Publication Regulations 1995***:

- ***Ice Navigation in Canadian Waters*** (2012 Ed.) published by the Canadian Coast Guard (Ministry of Fisheries and Oceans Canada).
- ***Annual Notices to Mariners 2018***

These publications can be found at the following website http://www.notmar.gc.ca

It is **strongly recommended to have onboard** and to have all personnel knowledgeable of the following documentation:

- ***Winter Navigation on the River and Gulf of St. Lawrence Practical Notebook for Marine Engineers and Deck Officers (TP 14335)*** (Edition 2011).
- ***Joint Industry – Government Guidelines for the Control of Oil Tankers and Bulk Chemical Carriers in Ice Control Zones of Eastern Canada (TP 15163)*** (Edition 2015).

PRE-ARRIVAL INFORMATION REQUESTED CONCERNING TYPE OF SEA WATER COOLING SYSTEM FOUND ABOARD THE SHIP

For reason of safety of navigation and coordination, we would like specific information concerning the type of sea water cooling system installed on board each vessel. It is very important that you refer to the ship's drawing (plans) in order to give us the most exact information.

Sketches attached are described from type 1 to type 6. It also includes a blank sketch in which you can draw your own system if your vessel does not correspond to those already drawn. Cooling systems consisting of types 3 to 6 are considered adequate and meet Canadian regulations. All temporary installations that have been installed in the past are considered a type 3. If the temporary system is to be used again – a condition from classification society is required for navigation in waters west of Les Escoumins Pilot Station for winter 2018/2019. This temporary installation was only supposed to be used to assist the vessel to get out of frazil/ice conditions. However, a repeat visitor still using a temporary SW recirculation system must declare it before entering Canadian waters. The SW recirculation system is not to be modified under any circumstances unless the classification society has been advised and approves the installation. A temporary installation, if not properly supervised, can lead to flooding of the engine room.

These sketches are related to the sea water cooling of the main engine and generating sets. Check off the applicable boxes numbered 1 through 38 that relate to your cooling system and return the information by e-mail or fax.

If you choose to reply by fax, you should print the sheet title "*Type of sea water cooling system*," check off the boxes and return it to us.

For transmission by e-mail, you could send the number of the boxes you checked off. Ex: For a vessel, that has recirculation of water to the pump with an automatic temperature control and equipped with a connection to the sea chest for steam and compressed air, your answer by e-mail would then be 3, 4, 5, 26, and 27. Please note that attachments sent by zipped file are automatically rejected by our Transport Canada server. Therefore, Acrobat Reader (***pdf***) format would be the best option.

If you require more information please do not hesitate to contact our office via CCG Radio station, e-mail or fax at:

winternav@tc.gc.ca or TCMarineSafety-Quebec-TCsecuritemaritime@tc.gc.ca or **fax: 1-418-648-5106**

SHIPS BOUND FOR ST. LAWRENCE SEAWAY

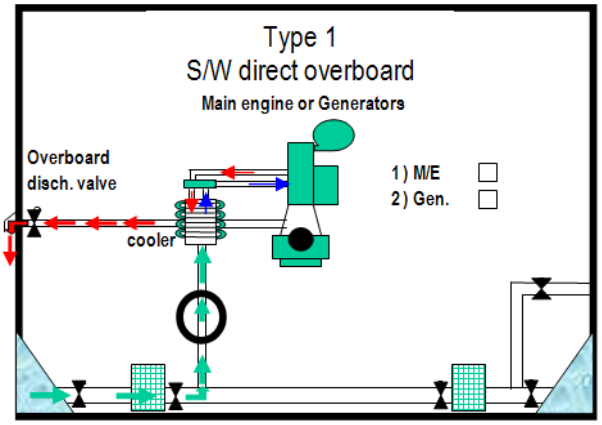
The St. Lawrence Seaway Management Corporation imposes a minimum Power to Length Ratio on ships bound to the Seaway when ice conditions are present. Their ***Practices and Procedures Handbook***, (Part X, Closing Procedures and Ice Navigation, section 97 (6) a) & b)) requires a minimum P/L Ratio of 24:1 for upbound ships and a minimum 15:1 for downbound ships.

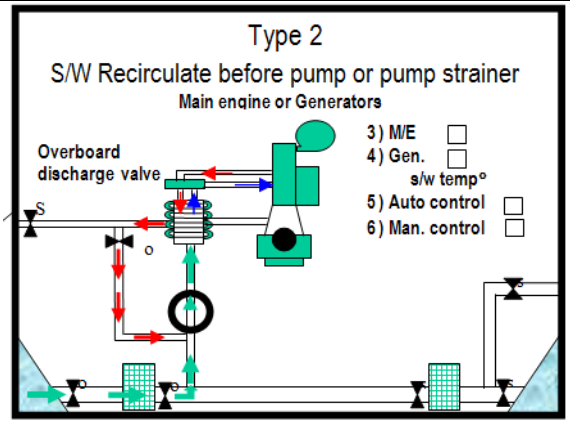
http://www.media-seaway.com/seaway_handbook/seaway-handbook-en/practices_and_procedures.pdf

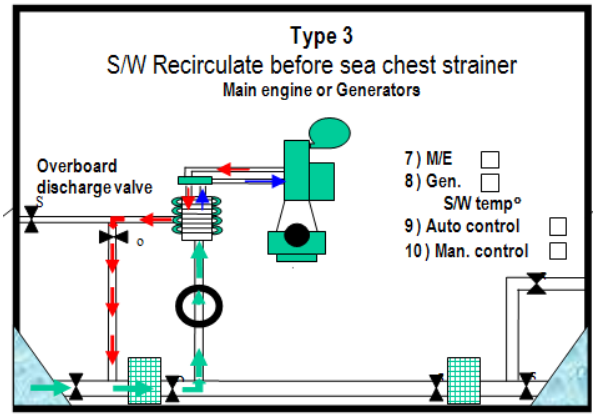
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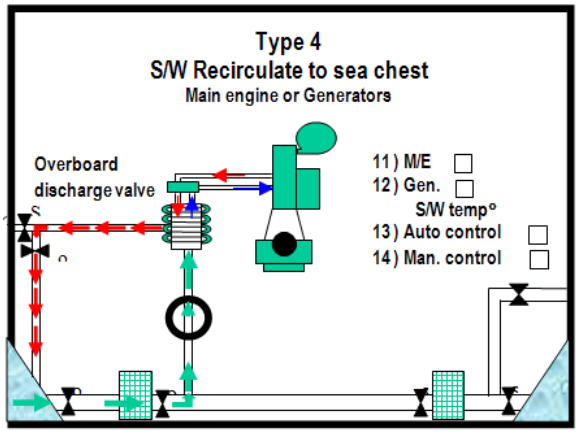
Name of Vessel:_____ **IMO No:**_____ **Type of ship**_____ **Year built**_____
Classification society_____ **Ice class**_____ **Deadweight** _____**Power (kW)**_____
Length (m):_____**Flag:**_____ **Destination port:**_____ **ETA:**_____

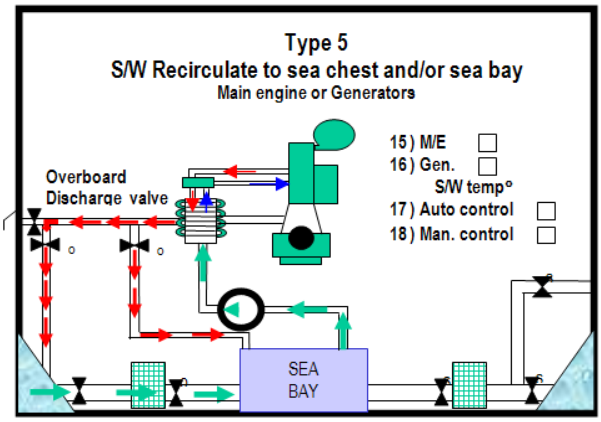
TYPE OF SEA WATER COOLING SYSTEM

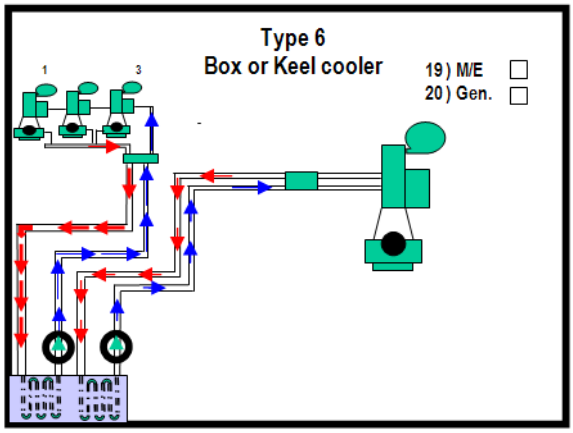


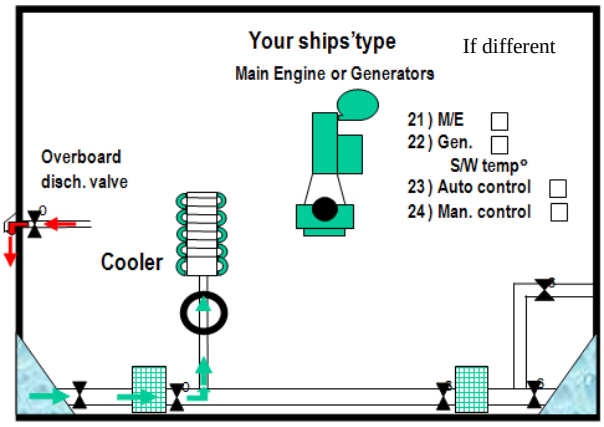












Cooling system options

25) Central cooling low temp° system ☐
26) Steam to sea chest ☐
27) Compressed air to sea chest ☐
28) Thermal oil coil in sea chest ☐
29) High suction ☐
30) Low suction ☐
31) Stern suction ☐
32) Baltic type (weir) sea chest ☐
33) Use of ballast water for main engine ☐
34) Use of ballast water for generators ☐
35) Recirculation water to ballast tank for main engine ☐
36) Recirculation water to ballast tank for generators ☐
37) Is SW recirculation system temporary? ☐
38) Is SW recirculation system permanent? ☐

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MARINE SAFETY GUIDE CHECKLIST FOR OPERATION IN ICE COVERED WATERS

ITEM	CHECK	REMARKS
1. Are there adequate ISM procedures for winter navigation (navigation, cargo and engine room operations)? Are they up-to-date and ship specific?		
2. Keep maximum ballast with the least trim.		
3. Observe cold weather precaution procedures concerning ballast (slack tanks, precaution to prevent vents and sounding pipes from freezing, etc.).		
4. Both anchors must be free of ice and be ready for immediate use.		
5. Pilot transferring equipment and boarding procedures to be maintained and safe for winter conditions.		
6. Avoid freezing spray. It's better to lose a few hours then a complete week in port "off hire" with an expensive de-icing shore crew. Ice accretion damages and unavailability of mooring equipment, life saving and firefighting equipment can lead to a detention. Ship stability could be impaired.		
7. Lifesaving and firefighting equipment should be maintained ice free and available at all times.		
8. Deck and muster stations must be kept free of snow and ice. Use salt/sand to prevent slippery deck.		
9. Keep both radar antennas working, if possible?		
10. Fog horn should be operational (blow every hour during freezing spray conditions).		
11. Keep deck hydraulic equipment on.		
12. Close as much as possible space vents to keep unnecessary cold air from coming in.		
13. The entire crew must be provided with proper winter clothing. This is not only for those working outside but also for all to face any emergency situations.		
14. Wheelhouse heating to be sufficient to prevent window frosting.		
15. HVAC humidity to be less than 40% to prevent frost on wheelhouse windows.		
16. Make sure lifeboat engine(s) and emergency generator are filled up with appropriate antifreeze.		
17. Make sure life boat engine(s) and emergency space are properly heated (appropriate temporary heating could be an option). Consider changing fuel oil for *Arctic diesel oil*. Start emergency engines on a regular basis if no heat is available.		
18. Fire line to be drained and blown with air (make sure lowest part of piping is provided with drain cock and main line going through deck is drained as well).		
19. Start to operate sea water recirculation system before entering into ice. Supercooled water with no ice cover could plug sea water suction almost immediately (experience shows that this could occur as deep as 11,6 m draught).		
20. Complete written procedures for operation of sea water cooling recirculation system to be made available for ER crew.		
21. Clogging up of sea water strainers often happens during sudden changes of main engine(s) load (maneuvering and pilot transfers); BE READY!		
22. Maintain sufficient engine room personnel on watch while navigating in ice infested waters. Make sure they know what to do. C/ENG night orders to reflect actual navigation conditions. Watch changeover – beware of ice conditions.		
23. Clean both high and low sea water strainers before entering winter zone.		
24. Use only one sea suction at a time; specifically the low sea suction. NEVER USE THE SEA SUCTION WITH THE STRAINER BASKET OUT.		
25. Open steam to standby sea suction to maintain it free of frazil/ice. (NOTE: steam will not be able to keep sea water suction ice free during normal operational flow).		
26. Have all the tools and lifting gear ready to clean sea water strainer at a moment's notice (remember a basket strainer full of ice is very heavy – and could take 30 – 45 minutes to clean it out). Bilge level will rise after each cleaning.		
27. Make sure sea chest vent is not choked (frozen) and its valve is left open. NEVER USE COMPRESSSED AIR TO CLEAR SEA CHEST IN OPERATION; this will create an airlock in the SW cooling system.		
28. Main sea water cooling *overboard discharge valve* to be kept open only 5% to 10% even with automatic temperature controller. Keep sea water pressure lower then fresh water and lower then lubricating oil system pressures.		
29. Keep sea water inlet at about 20^0 C.		
30. Keep an eye on seawater pressure (a drop in pressure = loss of suction & discharge pressure hunting = airlock).		
31. Keep other sea water cooling overboard valves shut as much as possible (auxiliary engines & condenser, etc).		
32. Keep steering gear system on and close space vents as much as possible.		

DISCLAIMER: This checklist should only be used as a guide. It does not forfeit Master's and ship officers' responsibilities. Transport Canada shall not be responsible for the manner this information is used, nor for inappropriate operation of ship equipment according to this checklist. It does not replace the ship specific winter navigation checklist(s) and procedures required on board of a ship plying in ice infested waters. SOLAS ((consolidation 2009) Ch I part B/ 11 (a)) and ISM Code (Part A/7).

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