**COLD WEATHER PRECAUTIONS CHECKLIST**

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| Vessel: |  |  | Date: |  |
| Location: |  |  | Voyage No: |  |

Refer to: Cold Weather Precautions Procedure.

Checks to following equipment to be carried out before and during entering cold weather:

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| Checks | | Tick () |
| **Steering Gear** | |  |
| 1. | Keep both steering motors running at all times and periodically move the rudder. |  |
| 2. | If in port or at anchor, operate the steering gear to prevent ice forming around the rudder. |  |
| 3 | Ensure that the steering flat door and vents are kept closed at all times. |  |
| 4. | If fitted, ensure space heaters are on. |  |
| 5. | If the telemotor system is hydraulic, keep the pump unit continuously running, if necessary. |  |
| **Engine Room** | |  |
| 1. | Check that all equipment heaters (for example, steering gear motors, portable heating lamps, control equipment, and electric motors) are fully operational. |  |
| 2. | Reduce ventilation to space or prevent direct cold air from contacting equipment by fitting shields. |  |
| 3. | Switch to seawater recirculation if available. |  |
| 4. | Leave electrical equipment and hydraulic machinery running, as necessary, to ensure good performance when required. |  |
| 5. | Take precautions in the emergency generator room for heaters, switchboard, motor, and cooling system. |  |
| 6. | Monitor sea chests for ice formation or accumulation. Suction and discharge pressure flow fluctuations may indicate ice formation. |  |
| 7. | Switch to lower sea chests and operate steam injectors. |  |
| **Bridge Equipment General** | |  |
| 1. | Ensure that all equipment heaters are fully operational (for example, electric motors, radar scanners, control equipment, air horn / whistle, bridge windows, and clear-view screens) and use appropriately. |  |
| 2. | Drain bridge window washer line. |  |
| 3. | Ensure bridge windows glass heater in on. |  |
| 4. | Ensure both port and starboard searchlights are functional and operated regularly. |  |
| 5. | Check that EPIRB trace heating self activates. |  |
| 6. | Slack down signal halyards. |  |

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| **Radar** | |  |
| 1. | Ensure that all radar scanner gearbox heaters are switched on. Gearboxes should also be drained of any water / moisture, and if appropriate an oil suitable for extreme low temperature operations re-filled to the system. |  |
| **Air Horn / Whistle** | |  |
| 1. | Ensure the airlines are drained. |  |
| 2. | Check operation occasionally and ensure the heater is on as appropriate. |  |
| 3. | It may be required to blow through the horn from time to time to keep it clear. |  |
| **Cargo Heating Coils** | |  |
| 1. | When not in use, blow through the lines with air to remove all moisture and fit blanks to the steam and exhaust lines. |  |
| 2. | Ensure that the blanks are fitted at a high point in order that there is no collection of water in a dead end. |  |
| 3. | When in use, maintain steam pressure at all times. Monitor return lines regularly. |  |
| **Inert Gas System** | |  |
| 1. | Ensure that the PV breaker has the correct mixture of anti-freeze. |  |
| 2. | Maintain steam pressure on the deck seal-heating coil. |  |
| **Emergency Generator** | |  |
| 1. | If water-cooled, the cooling system is to be filled with a suitable anti-freeze mixture. |  |
| 2. | Ensure that all electric heaters are operational. |  |
| 3. | Ensure fuel tank is filled with cold weather gas oil. |  |
| 4. | Ensure compartment vent is closed |  |
| **Life Rafts** | |  |
| 1. | Be aware that life rafts are generally tested and approved to operate at a temperature of -30°C, and may not inflate effectively at temperatures below that. |  |
| 2. | Ensure that life rafts are protected from extreme low temperatures by electrically heated blankets, thermal protection, storage within deckhouse adjacent to launch position or other similar method to achieve protection. |  |
| **Lifeboats** | |  |
| 1. | If the engines are water cooled, fill the cooling systems with a suitable anti-freeze mixture. |  |
| 2. | If not permanently fitted, rig temporary heater in the boat. |  |
| 3. | Lower the drinking water level in the storage tanks to about half way to allow for expansion. |  |
| 4. | Remove portable water containers and store in a convenient location; ensure that they are readily available. |  |
| 5. | Ensure that lifeboat batteries are fully charged and continue on charge. |  |
| 6. | Ensure fuel tanks are filled with cold weather gas oil and try the engine before the onset of extremely cold weather. |  |
| 7. | Check the status of the lifeboat engine lube oil. |  |
| 8. | Ensure the correct grade of lube oil is used. |  |
| **Fire Main** | |  |
| 1. | Ensure all intermediate deck valves are open. |  |
| 2. | Drain the line and make sure the anchor cable washing valves and the after deck valve are kept open. |  |
| 3. | Ensure external accommodation block lines are drained. |  |
| 4. | If it is necessary to use the system, isolate the sections not required and ensure circulation at all times while the system is in use. |  |
| 5. | Drain thoroughly on completion. |  |
| 6. | Fire main “drained” status to be posted in cargo office, bridge and engine control room along with location of any isolating valve that has been shut. |  |
| 7. | Post similar caution notices at all remote start points. |  |
| **Steam Lines On Deck** | |  |
| 1. | Drain unused fresh water from steam lines, and blow compressed air into them. Leave the drain valve open and tagged. |  |
| **Air And Control Air Lines On Deck** | |  |
| 1. | Drain compressed and control airlines and keep them free from water. Consider lagging. |  |
| 2. | Ensure control air supply to draft and ballast gauges is dry to avoid freezing of gauges. |  |
| **Cargo Lines, Tank Cleaning Lines, Bunker Lines (as applicable)** | |  |
| 1. | Take extra care by warming through deck lines where ambient temperatures are low. This instruction is to include all systems where hot fluids may be passing including cargo lines and bunker lines where the initial rate should be low and slowly increased after full expansion of the lines has taken place. All lines containing high viscosity oils should be completely drained after use to prevent blockages occurring through the oil solidifying. |  |
| 2. | If cargo heating required, ensure system/s (including any steam tracer lines) are on before encountering freezing temperatures. |  |
| **Ballast System** | |  |
| 1. | Ballast ship to draught so that sea suctions and propeller are below ice level. |  |
| 2. | Restrict trim a maximum 3m by stern to avoid ice passing below the ship and getting in way of sea suctions. |  |
| 3. | Change ballast to salt water if ballasting has been done in fresh (brackish) water. Warmer seawater ballast from mid ocean is the best choice. While in loaded condition, flush ballast lines with salt water to remove any trace of fresh water. |  |
| 4. | To allow for expansion, the ballast tanks must only be filled to 90% and must not, under all circumstances, be overfilled. |  |
| 5. | If possible, keep the peak tanks empty. |  |
| 6. | In exceptionally severe circumstances, always ensuring vessel remains within safe trim and stress limits and propeller is submerged, consider reducing the levels in ballast tanks inline with or below the level of Sea Water outside to minimize wind chill effect on ballast water. |  |
| 7. | Avoid leaving small amount of ballast in the tanks as this could freeze and block suction lines. |  |
| 8. | It is most important to confirm tank airpipes are clear before commencing any ballast or de-ballast operations. |  |
| 9. | Keep the ballast ports open as the ballast vent pipes may have ice build-up inside. |  |
| 10. | To avoid problems with the ballast freezing when the wind chill is below –20 degrees Celsius, visually observe the ballast, then, start pumping in and out if icing starts on the surface. If fitted operate any anti-freezing mechanism, e.g. running air bubbles through fitted lines as per manufacturer’s instructions in a regulated manner. |  |
| 11. | Operate cargo and ballast valves regularly to prevent ice from forming around the seat. |  |
| 12. | Consider loading cargo before ballast discharge to maintain maximum safe draft, reversing procedure when discharging. |  |
| 13. | Drain the ballast pumps and stripping pumps when not in use. |  |
| 14. | Fit canvas covers to the vents. |  |
| **Deck Machinery** | |  |
| 1. | Ensure that all deck hydraulic systems are checked, and any water / moisture is drained from the systems (including header tanks). |  |
| 2. | If appropriate, keep one hydraulic motor running at all times on each system. |  |
| 3. | Operate all machinery occasionally. |  |
| 4. | Ensure motor heaters are operational on non-running electric motors. |  |
| 5. | If steam deck machinery is fitted, all winches and windlasses must be continuously turning when the temperature is below freezing. Their operation is to be constantly monitored and supervised closely. Oil and grease steam deck machinery appropriately. |  |
| 6. | Ensure all moving parts, lashing equipment are liberally greased. |  |
| 7. | Avoid use of manila ropes on deck as they stiffen and become difficult to handle in cold. |  |
| 8. | Deploy pilot boarding equipment as near to intended time of use as possible to prevent icing and becoming slippery. |  |
| 9. | Ensure anchor equipment that may be used in ice conditions is covered by tarpaulins to prevent icing. |  |
| **Cargo Operations** | |  |
| 1. | Plan the discharge operation of heated cargoes to prevent blockage, particularly during stoppages. |  |
| 2. | Ensure all venting and pressure relieving devices, i.e. PV valves, PV breaker/s, etc are free and operational. |  |
| 3. | Confirm cargo valve operation before arrival. |  |
| 4. | Frequently check the tanks individually with portable IG pressure gauge; especially if the cargo is being loaded at a high rate and is at a low temperature, as ice build-up on the branch pipe could reduce the gas being expelled from the tank. |  |
| 5. | If cargo lines are blocked by solidified cargo, use steam injection through drain holes to clear them. This is a proven method of clearing cargo lines. |  |
| 6. | Check cargo pump strainers after discharge. |  |
| 7. | Ensure decks are cleared of snow and ice regularly. |  |
| 8. | Ensure supply of dry air to wilden pumps for spill containment as slide valve would freeze if air contains moisture. |  |
| **Produced Water Treatment** | |  |
| 1. | The produced water system when in use the operational temperature will normally be sufficient to avoid freezing. Temperature readings are to be made at regular intervals in order to ensure this. |  |
| 2. | During the periods when the water treatment plant is not in operation it must be checked that the plant is properly drained. |  |
| **Bunker Tanks** | |  |
| 1. | Check bunker tank suctions including steam trace line, if outside the engine room. |  |
| 2. | Ensure all airpipes and vents are kept free. |  |
| **Main Engine Systems** | |  |
| 1. | Operate lubricating oil purifier continuously to maintain oil temperature. If the system is shut down for maintenance, use the sump-heating coil; otherwise keep oil circulating. |  |
| 2. | If necessary, maintain engine cooling water temperatures close to working conditions. |  |
| 3. | Re-circulate the cooling seawater if possible. |  |
| 4. | Maintain a water level in the after peak tank for emergency cooling if this system is fitted. |  |
| **Engine Room Ventilation** | |  |
| 1. | Shut off fan flaps that are blowing directly on to machinery that are not in use always ensuring that there is sufficient ventilation for the main engine, generators, and boilers. |  |
| **Interior Spaces** | |  |
| 1. | Check that heating is on in all spare cabins, hospital, suez-boatman / repair room, lockers, etc. |  |
| 2. | Check for possible damage from condensation for material lying against bulkheads. |  |
| 3. | Check pipe ducts. |  |
| 4. | Shut off certain fans, or reduce the number of fans running, to keep areas warmer. |  |
| Fresh Water System | |  |
| 1. | Shut off and secure all outside fresh water valves, drain the lines. |  |
| 2. | Lag freshwater lines that are used on deck. |  |
| 3. | Drain the water from the wheelhouse window washing system. |  |
| 4. | Drain the fresh water from the ODME system. |  |
| 5. | Do not overfill the freshwater storage tanks; leave an air space. |  |
| Sanitary System | |  |
| 1. | If the sanitary system allows, add antifreeze or salt to unattended drain traps |  |
| 2. | Ensure small flow of water through system. |  |
| 3. | If ambient temperature drops below 5C considering adding heat to sanitary holding tanks and overboard lines. |  |
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| Second Engineer: |  |  | Chief Engineer: |  |
| Chief Officer: |  |  | Master: |  |
| Signature: |  |  | Signature: |  |