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RESTRICTED VISIBILITY

1. GENERAL

Restricted Visibility means; visibility ranges from 0 to 3 nautical miles restricted by fog, mist, falling snow, heavy rainstorms, sandstorms or any other similar causes.

Written instructions to OOW's should be based on above parameters; although limits may vary according circumstances, such as:

- a. OOW experience (Deck & Engine)
- b. Propulsion - and other plant condition
- c. Radar(s)
- d. Other traffic and/or navigating hazards in the vicinity
- e. Manoeuvring, steering and 'stopping' distance.

When restricted visibility is encountered or expected, the first responsibility of the OOW is to comply with the relevant rules of COLREG '72 and as amended, with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvres. In addition, he/she should:

- a. inform the Master,
- b. post proper look-out(s) and helmsman; and in congested or restricted waters, revert to hand steering immediately,
- c. place main engines on standby and inform the Duty Engineer Officer,
- d. exhibit navigation lights; commence giving relevant sound signals,
- e. operate and use the radar(s); commencing plotting other vessels,
- f. operate VHF.

2. SAFE SPEED

Comply with the COLREG 1972 Part B Regulation 6 stipulations, i.e.:

- a. proceed with an appropriate reduced speed.
- b. give the appropriate sound signals/light

3. CHECKLISTS

Company checklist – Nav B13 NAVIGATION IN RESTRICTED VISIBILITY

4. WATCHKEEPING

- 4.1. Master shall take charge of the watch.
- 4.2. Double-up watches on the Bridge.
- 4.3. Main engine must be ready to manoeuvre. On vessels approved for Unmanned Machinery Space operation the engine can be operated remotely from the bridge and does not require the engine room to be manned, however, the duty engineer must be up and about immediately available on call.
- 4.4. To avoid fatigue during prolonged navigation in restricted visibility the Master may delegate the responsibility of safe navigation to the Chief Officer, and retire to his/her cabin or pilots cabin for rest, provided he/she is immediately available on call. The Master must be called whenever a close quarters situation is detected on radar or when in doubt.

5. RADAR

The use of radar does not mean that the vessel can proceed at an unsafe or inappropriate speed, give no sound-signals or not place lookouts in contravention of the COLREGS and STCW.

Officers are referred to the comprehensive guidance on Radar usage in **BRIDGE PROCEDURES GUIDE – Chapter - Operation and Maintenance of Bridge Equipment / Radar and Radar Plotting Aids**

6. ANCHORING IN RESTRICTED VISIBILITY

If the ship's position is in doubt or there is a complete radar failure then consideration should be given to stopping the ship or anchoring if the depth of water permits.

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7. HEAVY WEATHER

Weather forecasts to be taken regularly, including during stays in port, and approaching storms must be tracked and monitored.

Alteration of course, or reduction in speed, or change of route must be considered in order to avoid weather damage to ship and cargo, or harm to persons on board.

On the approach of heavy weather, the Master shall ensure an inspection is made of the vessel to ensure that:

- cargo lashings are tight and secure,
- hatch covers and accesses are securely closed,
- tank accesses and openings are securely closed and drip trays drained of oily residue,
- on tankers P/V valves are fully operational,
- all weather deck openings (doors, vents, ports) have been secured,
- all loose gear secured and mooring lines stowed away,
- cargo gear well secured and controls covered
- chain lockers battened and spurling pipe and hawse pipe covers in place,
- Precautions to be taken timeously to secure drums, tools, and equipment.
- Galley Staff are informed and equipment and crockery is secured.

Prior to crew members proceeding on deck to inspect the ship the Master should check that it is safe to do so and should consider reducing the ship's speed and altering course to minimise the possibility of shipping seas on deck and endangering the crew. Crewmembers should exercise the greatest caution when proceeding on the weather deck. Crew must notify the OOW of their return to the safety of the accommodation once finished on deck.

See company Checklist Nav B14 NAVIGATION IN HEAVY WEATHER or in TRS areas

7.1. Freak Waves Due to Wind and Current Effects

Masters must consider the effect on sea conditions when winds are contrary to currents.

For example, on the S.E. coast of South Africa in certain conditions very large waves (30M high) are sometimes experienced when the strong Agulhas current opposes a gale force SWly wind and heavy swell. It is on record that ships have broken in half or floundered after being swamped by such waves. When conditions are conducive to the formation of such waves, immediate action must be taken to take the ship out of the flow of the current.

7.2. Dangerous Situations in Following and Quartering Seas

When sailing in severe following or quartering seas, a ship is likely to encounter various kinds of dangerous phenomena, which may lead to capsizing.

7.2.1. Reduction of Intact Stability Caused by Riding on the Wave Crest at Midship

In certain following or quartering sea conditions when a ship is riding on the wave crest at midship position a pure loss of righting stability maybe rapidly experienced when ship's speed synchronises with the wave phase speed, and with the wavelength approximately the same as the ship's length.

When a crest of a wave moves into the midship position the ship will ride or surf the top of the wave while remaining almost stationary relative to the crest of the wave.

The vessel's water plane area will alter dramatically due to a rapid reduction in draught fore and aft, causing the vessel to lose buoyancy; while the centre of gravity rises with the resulting of the loss of righting lever (stability). This will cause the vessel to rapidly develop a large angle of heel with the danger of the wave immersing part of the main deck causing further loss of stability and danger of capsize.

The phenomenon is further aggravated by broaching, and by the ratio of wave height to wavelength. The higher the wave height for a constant wave length, the less the vessel's stability.

7.2.2. Surf-Riding and Broaching

When a ship is situated on a steep forefront of a high wave in following and quartering sea condition, the ship can be accelerated to "surf-ride" on the wave. This may result in "broaching", a sudden change in the ships heading and unexpected large heeling that may result in capsize.

7.2.3. Synchronous Rolling Motion

Large "synchronous" rolling motions may occur when the natural rolling period of a ship coincides with the wave period.

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7.2.4. Parametric Rolling Motion

Unstable and large amplitude roll motion will take place if the wave period is approximately equal to half of the natural roll period of the ship. In following or quartering seas, this can occur particularly when the initial metacentric height is small and the natural roll period is very long.

7.2.5. Operation Guidance

- The ships range of stability should be kept to a maximum provided the ship does not become too stiff.
- In a following and quartering sea the OOW should keep a sharp lookout for the conditions necessary for the phenomenon such as ship speed close to wave speed, large “synchronous” rolling.
- Immediate preventative action should be taken such as a reduction in ships speed and/or an alteration of course.

8. TROPICAL REVOLVING STORM

Tropical Revolving Storm (TRS) – an intense rotating depression (a region of low pressure at the surface) which develops over the tropical oceans. They are often the cause of very high winds and heavy seas.

It is unlikely to sail into a storm with all navigational aids and communication systems in place, master to plan an alternate route to avoid TRS in good time in liaison with Marine Superintendent and or DPA. To avoid it altogether, OOW should gather as much information about the storm as practically possible. This may include frequent monitoring of the weather reports and if required seek assistance from office. A close watch is to be kept on its intended path by plotting on chart. All efforts are to be made to keep at least 100 nautical miles off from the center of the eye, if possible to avoid TRS at least 250 nautical miles off. Please refer The Mariner’s Handbook on Tropical Storms, para 7.19 to 7.28 for further information.

For vessels entered with weather routeing service, Master should follow weather routeing advice provided by the service provider to avoid TRS.¹

¹ W 08 / 2024