Annex A

Internal SMS audit preparation form

Visemar di Navigazione Srl

INTERNAL SMS AUDIT

PREPARATION FORM

Internal SMS Audit Preparation	Date 21ST JUNE 2010
Department/Vessel **SCOTTISH VIKING**	Audit No. 01/10
Auditor [redacted]	Auditee [redacted] Master [redacted] Ch.Eng.
Purpose **Scheduled audit**	
Scope **Assessment of the SMS implementation on board**	
Identify specific elements of the SMS to be audited **Ch. 2 – Ship's personnel – Familiarization** **Ch. 3 – Officers' duties and responsibilities** **Ch. 4 – Drug & Alcohol policy** **Ch. 5 – Safety management** **Ch. 6 – Safe working on board** **Ch. 8 – Maintenance** **Ch. 11 – Training & drills** **Ch. 20 – Purchases** **Ch. 21 – Document control** **Ch. 23 – Pollution prevention**	
Identify specific elements of the ISM Code to be audited **All the Items of the ISM Code**	
Resources required **Ship's files – SMS Manual – SMS logs – record books**	
Auditee informed **Yes**	
Prepare audit plan **Through ISM Code / SMS Manual**	[redacted]
Signature	Auditor [redacted]

Annex B

Extracts from the ISM Code

Extracts from the ISM Code, Section 5

5 MASTER'S RESPONSIBILITY AND AUTHORITY

5.1 The Company should clearly define and document the master's responsibility with regard to:

.1 implementing the safety and environmental-protection policy of the Company;
.2 motivating the crew in the observation of that policy;
.3 issuing appropriate orders and instructions in a clear and simple manner;
.4 verifying that specified requirements are observed; and
.5 periodically reviewing the safety management system and reporting its deficiencies to the shore-based management.

5.2 The Company should ensure that the safety management system operating on board the ship contains a clear statement emphasizing the master's authority. The Company should establish in the safety management system that the master has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary.

Annex C

Extracts from SMS, Chapter 14 - Navigation Procedure

- The helmsman or the automatic pilot is steering the correct course.
- The standard compass error is determined at least once a watch and when possible, after any major alteration of course. Entry in the Gyro error log book and GN parte III is required.
- The standard and gyro-compasses are frequently compared and repeaters are synchronised with their master compass.
- The automatic pilot is tested manually at least once a watch.
- The navigation signal lights and other navigational equipment are functioning properly.
- At least once a day the Bridge Check List n. 14 must be carried out and recorded in GN parte III.

14.4.3 Automatic Pilot.

The officer of the watch should comply at all times with the requirements of regulation 24, chapter V of the International convention for the safety of life at sea (SOLAS).

He should take into account the need to station the helmsman and to put the steering in manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner.

With a ship under automatic steering it is highly dangerous to allow a situation to develop to the point where the officer of the watch is without assistance and has to break the continuity of the look-out in order to take emergency action.

The change-over from automatic to manual steering and vice-versa should be made by, or under the supervision of, a responsible officer.

14.4.4 Electronic Navigational Aids.

The officer of the watch should be thoroughly familiar with the use of the electronic navigational aids carried, including their capabilities and limitations.

The echo-sounder is a valuable navigational aid and should be used whenever appropriate. Switch on and switch off area must be hileighted on the nautical chart and in the passage plan.

The echo sounder recorder should be switched on prior to each approach to shallow water and port entry and prior to departure and remain in operation while in shallow waters. The date and time of switching on should be marked on the recorder chart. In addition, the date and time of passing significant land or seamarks should be marked on the recorder.

GPS is referenced to WGS84 and it is recommended that the GPS receiver is maintained referenced to that datum. Hydrographic offices are gradually changing all charts to WGS84 and these charts include the legend "WGS84 positions can be plotted directly on this chart". Some charts contain information on latitude and longitude shift values that should be applied to GPS positions before they are charted.

Occasionally these can be significant, and many charts still show the land or obstructions in the wrong position when compared with GPS data. Accuracy of positions using GPS can be affected, amongst other things, by differences in datums, solar activity and powerful radar or radio transmissions, including deliberate jamming.

Discrepancies in charted positions of obstructions can also introduce significant differences between GPS derived positions and more traditional methods.

14.4.5 Radar.

The officer of the watch should use the radar when appropriate and whenever restricted visibility is encountered or expected, and at all times in congested waters having due regard to its limitations.

Whenever radar is in use, the officer of the watch should select an appropriate range scale, observe the display carefully and plot effectively.

The officer of the watch should ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible, as small or poor echoes may escape detection.

The officer of the watch should ensure that plotting or systematic analysis is commenced in ample time.

In clear weather, whenever possible, the officer of the watch should carry out radar practice to the deck cadet, if any.

14.4.6 Navigation in Coastal Waters.

The largest scale chart on board, suitable for the area and corrected with the latest available information, should be used.

Fixes should be taken at frequent intervals; whenever circumstances allow, fixing should be carried out by more than one method.

The officer of the watch should positively identify all relevant navigation marks.

The Bridge check list n. 7 must be duky filled and recorded in G.N. part III.

14.4.7 Navigation.

The vessel's position should be fixed hourly, using two independent means of obtaining the position or line(s) of position (LOP).

If the fix is by LOP, then at least three lines must be used.

At least two methods of position fixing should be charted, where possible. Visual and radar position fixing and monitoring techniques should be used whenever possible.

GPS derived positions should always be verified by alternative methods.

The frequency of position fixing should be such that the vessel cannot run into danger during the interval between fixes.

Parallel indexing on the radar plotter should be used with suitable shore radar targets to provide an accurate indication of the vessel's track along a coast.

The parallel indexed track should be verified by cross bearings whenever possible.

The Master must regularly verify and firmly enforce the Company's requirements for frequency and method of position fixing.

14.4.8 Vessel Traffic Systems

Should any vessel traffic control centre order a Company vessel to change course, speed, or both, or to stop, the Master shall comply.

Should the directions of a traffic control centre conflict with the Master's assessment of the safety requirements of the vessel, the Master shall inform the traffic control centre that its

directions are impractical or unsafe, and attempt to reach a compromise course of action. In implementing this mutually agreed-upon course of action, the Master is in no manner relieved of responsibility for the safe navigation and operation of the vessel.

14.4.9 Clear Weather.

The officer of the watch should take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision; such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range.

He should also take early and positive action in compliance with the applicable regulations for preventing collisions at sea and subsequently check that such action is having the desired effect.

14.4.10 Collision Avoidance.

In suitable weather the deck watch officer may be the only lookout. He must be especially vigilant, so maintaining a good, all-around lookout to avoiding collisions.

Other important collision prevention measures include:

- Taking early and substantial action when required to do so to avoid another vessel.
- Using every available means to determine if risk of collision exists
- Carefully evaluating all aspects of the situation before taking action.
- Slowing or stopping the ship if necessary to reduce risk of collision.

The automatic radar plotting aid (ARPA), should be used to maximum potential in assessing risk of collision and evaluating alternative evasive measures, however, the indications of the ARPA should be verified whenever possible by plotting or by visual bearings.

Plotting should begin as soon as targets appear on the radar display.

14.4.11 Watchkeeping Personnel.

The officer of the watch should give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch including the appropriate lookout.

14.4.12 Lookout.

As per STCW '95, an efficient lookout should be maintained with the responsibility of the Officer of the watch.
The lookout must be clearly instructed in his duties and be sufficiently alert, competent and clothed to perform them.
No other duties should be assigned to the lookout.
He must maintain a vigilant watch by sight and hearing for anything unusual or hazardous to the ship, including vessels, aircraft in distress, wrecks, persons, debris, discoloured water, or sounds.
The helmsman cannot be a lookout while hand steering.

Annex D

Master’s standing orders at sea

MASTER'S STANDING ORDERS AT SEA

1. All Deck Officers must ensure that the navigational watch is maintained strictly in accordance with :
   a) ICS Bridge Procedure Guide
   b) All international and local rules and regulations,
   c) The STCW operational guidance on watch keeping a navigational watch.
   d) SMS manual content
   e) Bridge Team Management
2. **The safety of the ship and ALL personnel on board is paramount.**
   This takes precedence over all your other responsibilities.
3. The Officer in charge of the navigational watch is responsible for navigating the ship safely during his period of duty.
4. He should be aware of the serious effects of operational or accidental pollution of marine environment and shall take all possible precautions to prevent such pollution.
5. He must ensure that a proper look-out is maintained at all times.
6. In no circumstances shall the bridge be left unmanned or unattended.
7. The Officer in charge of the navigational watch shall not hand over the watch to the relieving Officer, if there is reason to believe that the latter is not capable of carrying out watch keeping duties effectively, in which case Master must be informed.
8. The relieving Officer shall not take over the watch until his vision is fully adjusted to light conditions; he should satisfy himself as to the ship's position and confirm its intended track, course and speed and engine controls and shall note any dangers to navigation expected to be encountered during his watch.
9. The Officer in charge of the navigational watch must check operational condition of the navigational and safety equipment being used or likely to be used during the watch.
10. The Officer in charge of the navigational watch must check errors of gyro and magnetic compasses, radar range and bearings, and all navigational instruments being used or likely to be used and apply them correctly.
11. He should make himself familiar with manoeuvring characteristics of the vessel, including stopping distance and possible effect of heel, trim, water density and squat and should know that other ships may have different handling characteristics.
12. When a manoeuvre or action to avoid any hazard is taking place, the relief of the officer shall be deferred until such action has been completed
13. The Officer on watch shall continue to be responsible for the safe navigation of the ship, despite the presence of Master on the bridge, until informed specifically that the Master has assumed that responsibility and is mutually understood, and notify Master when in doubt as to what action to take in the interest of safety.
14. The Officer on watch shall check course steered, position and speed of the vessel at sufficiently frequent intervals (in pilotage waters every 10 minutes, in coastal waters every 20 minutes and in open seas every one hour), using all available navigational aids necessary to ensure that the ship follows the planned course.
15. Officer on watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.
16. Officer on watch shall make the most effective use of all navigational equipment at his disposal.
17. In case of need he shall not hesitate to use the helm, engines and sound signalling apparatus. However, timely notice of intended variations of the engine speed should be given where possible.
18. A proper record shall be kept of movements and activities relating to the navigation of the ship.
19. Operational tests of shipboard navigational equipment to be carried out at sea, whenever appropriate and recorded.
20. The Officer on watch must ensure that helmsman or automatic pilot is steering correct course, automatic pilot is tested manually once a watch, navigation lights are functioning properly, radio equipment is functioning properly, engine controls, alarms and indicators are functioning properly.
21. The Officer on watch must change over from automatic pilot to manual steering in good time to allow any potentially hazardous situation to be dealt in a safe manner.
22. The Officer on watch must be thoroughly familiar with the use of all electronic navigational aids including their capabilities and limitations.
23. Echo sounder is a valuable navigational aid and must be used during all arrival / departure port and at sea as appropriate.
24. Use radar whenever restricted visibility is encountered or expected, and at all times in congested waters ensuring that range scales employed are changed at sufficiently frequent intervals, bearing in mind that small or poor echoes may escape detection. Use parallel indexing to pass a given navigational mark or danger point at fixed distance where appropriate.

25. INFORM MASTER IMMEDIATELY:

a) if restricted visibility is encountered or expected: less than 3 miles
b) if traffic conditions or the movement of other ships are causing concern
c) If difficulty is experienced in maintaining course
d) On failure to sight land, navigational mark or to obtain soundings by expected time
e) If unexpectedly land or a navigation mark is sighted or a change in soundings occurs
f) On breakdown of engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator
g) If the GMDSS / radio equipment malfunctions
h) In heavy weather, if in doubt about the possibility of weather damage
i) If ship meets any hazard to navigation such as ice or derelict
j) In any other emergency or if any doubt

26. Despite the requirement to notify the Master immediately in the foregoing conditions, the Officer on watch shall in addition not hesitate to take immediate action for the safety of the ship, if so required.
27. In clear weather, the Officer on watch shall take frequent bearings of approaching ships, to detect if risk of collision exists.
28. In clear weather, whenever possible, the Officer on watch shall carry out radar practice. He shall also, where possible, use sextant to practice sight calculation.
29. In restricted visibility use fog signals, inform engineer on watch, engine to be ready for immediate manoeuvre. In addition:
    - inform the Master
    - post a proper look out
    - exhibit navigation lights
    - use radar
30. In coastal and congested waters use largest scale charts; fixes to be taken at more frequent intervals and shall be carried by more than one method where applicable, and positively identify all relevant shore navigation marks.
31. While pilot on board, officer on watch must co-operate with pilot and maintain an accurate check on ship's position and movement. If in doubt as to the pilot action, shall seek clarification from pilot; if doubt still exists, inform the master and take whatever action is necessary before he arrives.
32. While at anchor
    - Plot ship's position on appropriate chart, check frequently ship's position by bearing of fixed navigation mark or shore objects
    - Maintain proper look-out, inspection rounds to be made periodically
    - Observe weather, tide and sea state
    - Notify the Master and take all necessary action if ship drags anchor
    - If visibility deteriorates notify the Master and keep engines and other machinery ready for use.
    - Ensure ship exhibit appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations
    - Take measure to protect environment from pollution by the ship and comply with applicable pollution regulations.

Signed : Capt. [redacted] (ship's stamp)

M/N "SCOTTISH VIKING" BARI

I HAVE READ AND UNDERSTOOD THE ABOVE MASTER'S STANDING ORDERS,

Signed : C/O [redacted] **2/O:** [redacted] **3/O:** [redacted] **Cadet** [redacted]

2/O: [redacted]

Annex E

Rules 2,5,7,8,15,16,17 and 34 of the International Regulations for Preventing Collisions at Sea 1972 (as amended)

Extracts from the International Regulations for Preventing Collisions at Sea 1972

(as amended)

Rule 2

Responsibility

(a) Nothing in these Rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

(b) In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.

Rule 5

Lookout

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Rule 7

Risk of Collision

(a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

(b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

(c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.

(d) In determining if risk of collision exists the following considerations shall be among those taken into account:

(i) Such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change;

(ii) Such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

Rule 8

Action to avoid collision

(a) Any action to avoid collision shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

(b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

(c) If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.

(d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.

(e) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.

(f) (i) A vessel which, by any of these Rules, is required not to impede the passage or safe passage of another vessel shall, when required by the circumstances of the case, take early action to allow sufficient sea-room for the safe passage of the other vessel.
(ii) A vessel required not to impede the passage or safe passage of another vessel is not relieved of this obligation if approaching the other vessel so as to involve risk of collision and shall, when taking action, have full regard to the action which may be required by the Rules of this part.
(iii) A vessel the passage of which is not to be impeded remains fully obliged to comply with the Rules of this part when the two vessels are approaching one another so as to involve risk of collision.

Rule 15

Crossing situation

When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

Rule 16

Action by give- way vessel

Every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear.

Rule 17

Action by stand-on vessel

(a) (i) Where one of two vessels is to keep out of the way the other shall keep her course and speed.

(ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid collision.

(c) A power-driven vessel which takes action in a crossing situation in accordance with subparagraph (a)(ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

(d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

Rule 34

Manoeuvring and Warning Signals

(a) When vessels are in sight of one another, a power-driven vessel under way, when manoeuvring as authorized or required by these Rules, shall indicate that manoeuvre by the following signals on her whistle:

- one short blast to mean "I am altering my course to starboard";
- two short blasts to mean "I am altering my course to port";
- three short blasts to mean "I am operating astern propulsion".

(b) Any vessel may supplement the whistle signals prescribed in paragraph (a) of this Rule by light signals, repeated as appropriate, whilst the manoeuvre is being carried out:

(i) these signals shall have the following significance:

- one flash to mean "I am altering my course to starboard";
- two flashes to mean "I am altering my course to port";
- three flashes to mean "I am operating astern propulsion".

(ii) the duration of each flash shall be about one second, the interval between flashes shall be about one second, and the interval between successive signals shall not be less than ten seconds.

(iii) the light used for this signal shall, if fitted, be an all-round white light, visible at a minimum range of 5 miles, and shall comply with the provisions of Annex I to these Regulations.

(c) When in sight of one another in a narrow channel or fairway:

(i) a vessel intending to overtake another shall in compliance with Rule 9 (e)(i) indicate her intention by the following signals on her whistle.

- two prolonged blasts followed by one short blast to mean "I intend to overtake you on your starboard side";
- two prolonged blasts followed by two short blasts to mean "I intend to overtake you on your port side".

(ii) the vessel about to be overtaken when acting in accordance with 9(e)(i) shall indicate her agreement by the following signal on her whistle:

- one prolonged, one short, one prolonged and one short blast, in that order.

(d) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by at least five short and rapid flashes.

(e) A vessel nearing a bend or an area of a channel or fairway where other vessels may be obscured by an intervening obstruction shall sound one prolonged blast. Such signal shall be answered with a prolonged blast by any approaching vessel that may be within hearing around the bend or behind the intervening obstruction.

(f) If whistles are fitted on a vessel at a distance apart of more than 100 meters, one whistle only shall be used for giving manoeuvring and warning signals.

MGN 313 (F) Keeping a Safe Navigational Watch on Fishing Vessels

Maritime and Coastguard Agency

MARINE GUIDANCE NOTE

MGN 313 (F)

KEEPING A SAFE NAVIGATIONAL WATCH ON FISHING VESSELS

Notice to all Owners, Operators, Skippers, and Crews of Fishing Vessels

This note supersedes MGN84(F) and should be read in conjunction with MSN1781(M+F) Distress Signals and Prevention of Collisions, MGN266 (F) Guidance on the Interpretation of SOLAS Chapter Five for Fishing Vessels, MGN 137 (M+F) Look-out During Periods of Darkness and Restricted Visibility and MGN 202 (M+F) Navigation in Fog.

Summary

This notice explains the need to maintain a proper navigational watch at all times.
Key points.

- Watches must be kept by competent people;
- A Proper lookout should be kept at all times;
- Check the vessels position by all available means;
- The activities of all other vessels in the area should be monitored;
- Sufficient rest should be taken before a watch.

1. Introduction/ Background

1.1 Investigations into collisions, groundings and near misses involving fishing vessels have continued to show that poor watchkeeping is a major cause. In many cases one or more of the following were important factor(s):

- An unqualified or inexperienced person in charge of the watch;
- Only one person on the watch (regardless of whether a watch alarm was fitted);
- A poor lookout and/or radio watch being kept;
- Distraction by TV in the wheelhouse;
- Divided command;
- Fatigue, alcohol, prescription drugs or a combination of any of these.

2. What are the Arrangements of a Safe Navigational Watch?

2.1 Even where there is no statutory requirement for certificated officers, it is still essential that watchkeepers are always experienced, capable, and have been instructed in their duties. This is especially vital if you are making a landfall, navigating close to the coast, in restricted visibility, severe weather conditions or in areas where there is dense traffic.

2.2 While deciding the composition of the watch the following factors should be taken into account:

- The wheelhouse must not be left unattended at any time;
- The weather conditions, visibility and time of day. Although the size of the crew and the wheelhouse may not permit a continuous two person watch, two people should always be on watch during the hours of darkness and in poor weather conditions;
- The proximity of navigational hazards and any other hazards which may require additional navigational duties to be undertaken;
- The use and operational condition of navigational aids such as radar, echo sounder, automatic pilot, and position-fixing equipment(s).
- Any unusual demands on the navigational watch that may arise as a result of fishing operations.

3. Fitness for Duty

3.1 Both the skipper and the watchkeepers should take full account of the quality and quantity of rest taken when determining fitness for duty. Particular dangers may exist when the watchkeeper is alone. It is all too easy to fall asleep, especially while sitting down in an enclosed wheelhouse. Watchkeepers should ensure they remain alert by moving around frequently, and ensuring good ventilation.

4. Navigation

4.1 The Merchant Shipping (Safety of Navigation Regulations) requires that all voyages are planned, taking into account any relevant information, and courses should be checked before departure.

4.2 It is important that watch keepers maintain a close watch on their own vessel and always know the position, speed and course steered. Most groundings occur when the position is not being monitored and the watchkeeper thinks that the vessel is in safe water.

4.3 The watchkeeper should be aware of the location, operation and limitation of all safety and navigational equipment on board.

4.4 The person in charge of a navigational watch should not undertake any other duties that would interfere with the safe navigation of the vessel.

4.5 Unfortunately it may not be possible to rely on every give-way vessel to keep clear. It is therefore vital to monitor the movement of ALL traffic. Remember that a vessel engaged in fishing does not always have the right of way. In restricted visibility, even with gear extended, a fishing vessel has no special privileges.

4.6 Domestic radios, cassette players and television sets and other recreational items should never be used in the wheelhouse when they will distract a watchkeeper from their duties. The proper place for such items, especially television sets, is in the accommodation.

5. Navigational Equipment

5.1 Watchkeepers should make effective use of all available navigational equipment and not hesitate to use the helm, engines and sound signals. The radar should be used as an aid. There is no substitute for keeping a good visual lookout.

5.2 It is strongly recommended that any automatic pilot fitted should incorporate a watch alarm. It is a good practice to extend the installation of a watch alarm to vessels not fitted with automatic pilot. A watch alarm should be fitted on board ALL vessels where there may be one person on navigational watch. The watch alarm will not only alert the watchkeeper but also other member(s) of the crew. However, a watch alarm should not be relied upon exclusively.

5.3 Over-reliance on video plotters has been a factor in several recent collisions and groundings. Using an electronic system does not remove the need for proper passage planning and navigation, using appropriately scaled paper charts.

5.4 Assessments or assumptions based on video plotters alone are dangerous and unreliable. A video plotter used for fishing purposes is not adequate for safe navigation.

5.5 If a video plotter is used, it is imperative to be aware of its limitations and a cross-check should always be made about the accuracy of your position, course and speed. Equipment of this type may be used as an aid to navigation, but it cannot replace the fundamental need to maintain a visual lookout.

5.6 Information, charts, routes and waypoints may be stored for future reference. However, stored data should always be checked and used with caution, especially if transferred between vessels. The data should be applicable to the vessel's specific condition and voyage, and always kept up to date.

5.7 Electronic magnetic compasses may be unsuitable for use within a steel wheelhouse.

5.8 Groundings have been caused by the improper functioning of this equipment linked to an auto-pilot. When a heading reference is required for navigational equipment such as an auto-pilot or radar, it is recommended that a transmitting magnetic compass (rather than an electronic magnetic compass) be fitted.

6. Navigational Duties and Responsibilities

6.1 The person in charge of the watch should:

- keep watch in the wheelhouse, which should never be left unmanned;
- continue to be responsible for the navigation of the vessel, despite the presence of the skipper, until it is mutually agreed that the skipper has taken over;
- notify the skipper when in any doubt as to what action to take in the interest of safety;
- not hand over to someone who is obviously not capable of taking over the watch. If there is any doubt the skipper should be advised accordingly;
- on taking over a watch establish the vessel's estimated or actual position and confirm the intended track course and speed. Any danger(s) to navigation which is likely to be encountered during the watch should be noted;
- maintain a proper log of all movements and activities during the watch that relate to the navigation of the vessel.

7. Look-out

7.1 It is absolutely essential that a proper look-out is kept at all times. Casualties to fishing vessels, resulting in loss of life, continue to occur because of the lack of a look-out. In addition to assessing the situation and risk of collision, stranding and other navigation dangers, the duties of the look-out should include the detection of other vessel(s) and/or aircraft in distress, shipwrecked persons, wrecks and debris, plus anything out of the ordinary.

7.2 The look-out must give full attention to keeping a proper look-out and no other duties should be undertaken which could interfere with that task. The duties of the look-out and helmsman are separate and the helmsman is not considered to be the look-out while steering except where an unobstructed all round view is provided and there is no impairment of night vision or other impediment. The watchkeeper may be the sole look-out during daylight hours provided that it is safe to do so and assistance is immediately available.

8. Weather Conditions

8.1 The watchkeeper should take early action to notify the skipper when adverse changes in the weather could affect the safety of the vessel, including the possibility of icing occurring.

9. Navigation with Pilot Embarked

9.1 The presence of a pilot on board does not relieve the skipper or watchkeepers from their duties and obligations. The skipper and pilot should exchange information regarding navigational procedures, local conditions and, the vessel's characteristics. The skipper should co-operate closely with the pilot. An accurate check of the vessel's position and movement should be maintained.

Further Information

Further information on the contents of this Notice can be obtained from:

Fishing and Code Vessels Safety Branch
Bay 2/05
Maritime and Coastguard Agency
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel : +44 (0) 23 8032 9163
Fax : +44 (0) 23 8032 9447
e-mail: robb.bailey@mcga.gov.uk

General Inquiries: 24 Hour Infoline
infoline@mcga.gov.uk
0870 600 6505

MCA Website Address: www.mcga.gov.uk

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Safer Lives, Safer Ships, Cleaner Seas

An executive agency of the Department for Transport

MGN 315 (M) Keeping a Safe Navigational Watch on Merchant Vessels

Maritime and Coastguard Agency

MARINE GUIDANCE NOTE

MGN 315 (M)

KEEPING A SAFE NAVIGATIONAL WATCH ON MERCHANT VESSELS

Notice to Owners, Operators, Managers, Masters and Officers of Merchant Vessels

This notice should be read in conjunction with MGN 137 (M+F) and MGN 202 (M+F)

Summary

This Merchant Guidance Notice (MGN) gives guidance on the application of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (**STCW 95**)[1] regarding the keeping of a safe navigational watch.

Key Points

This notice gives information and guidance on the keeping and maintaining of a safe navigational watch in accordance with the requirements of STCW 95 and its associated code (**STCW Code**).

The areas that this notice covers are:
General application for Masters and officers in charge of a navigational watch;
Fitness for duty;
Performing the navigational watch;
Watch arrangements, handing over the watch and taking over the watch;
Maintaining a safe look-out and relationship with the look-out;
Restricted visibility, safe speed, stopping distance and vessel at anchor;
Certification.

1.0 Introduction

1.1 This notice contains guidance for officers in charge of a navigational watch, which Masters are expected to supplement as they consider appropriate. It is essential that officers of the watch (**OOW**) appreciate that the proper performance of their duties is necessary in the interests of the safety of life and property at sea and the prevention of pollution to the marine environment.

[1] Available from the Publications Department, International Maritime Organisation, 4 Albert Embankment, London SE1 7SR

1.2 It is the responsibility of Masters, and companies owning or operating UK registered seagoing vessels, to ensure that the principles applying to the keeping of a safe watch, as detailed in STCW 95 are followed.

1.3 The Master shall not be constrained by the shipowner, charterer or any other person from taking any decision which, in the Master's professional judgment, is necessary for safe navigation. It is the duty of the Master of every vessel to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational watch at all times.

1.4 The International Chamber of Shipping (**ICS**) Bridge Procedures Guide is established as the principle guide to best watchkeeping practice and includes additional guidance on bridge resource management and the conduct of the bridge team including the use of passage planning, integrated electronic navigation systems and the use of GMDSS.

1.5 This notice, which should be read in conjunction with STCW 95 and ICS Bridge Procedures Guide, highlights the Maritime and Coastguard Agency (**MCA**) concerns and interpretations with respect to what constitutes the 'Keeping of a Safe Navigational Watch' in the light of recent maritime accidents and incidents.

1.6 The Annex to this notice lists relevant publications.

2.0 General

2.1 The OOW is the Master's representative and is primarily responsible at all times for the safe navigation of the vessel and for complying with the International Regulations for Preventing Collisions At Sea (**ColRegs**).

2.2 It is of special importance that the OOW ensures that at all times an efficient look-out is maintained and that ColRegs are complied with.

2.3 Officers and Masters are reminded that the vessel must at all times proceed at a safe speed.

2.4 The vessel's engines are at the disposal of the OOW and there should be no hesitation in using them in case of need. Where possible, timely notice of intended variations of engine speed should be given to the duty engineer. The OOW should know the handling characteristics of the vessel, including the stopping distance, and should appreciate that other vessels may have different handling characteristics.

2.5 Officers in charge of a navigational watch are responsible for navigating the vessel safely during their periods of duty with particular concerns for avoiding collision and stranding. The OOW shall also be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution.

2.6 Masters, owners and operators are reminded that the MCA considers it dangerous and irresponsible for the OOW to act as sole look-out during periods of darkness or restricted visibility.

2.7 The factors to be considered before the dedicated bridge look-out can be dispensed with are detailed in paragraph 8.3. It is implicit in STCW 95 that at all times when a ship is underway a separate dedicated look-out must be kept in addition to the OOW.

3.0 Fitness for Duty

3.1 The Merchant Shipping (Hours of Work) Regulations 2002 (**the Regulations**) apply to all seafarers employed or engaged in any capacity on board a seagoing vessel and includes officers and ratings assigned to bridge watchkeeping duties.

3.2 In summary, and unless covered by an exception, the Regulations provide for a minimum of 10 hours rest in any 24 hour period and 77 hours in any seven day period.

Hours of rest may be divided into no more than two periods, one of which should be at least six hours long, and the intervals in between should not exceed 14 hours.

3.3 The watch system shall be such that the efficiency of watchkeeping personnel is not impaired by fatigue. The Master shall take into account the quality and quantity of rest taken by the watchkeepers when determining fitness for duty.

3.4 It is the overall responsibility of the Master and the responsibility of every watchkeeping officer and rating to ensure that they are sufficiently rested prior to taking over a navigational watch. It is the responsibility of the owner or operator to ensure that the vessel is manned with a sufficient number of personnel so that a safe navigational watch can be maintained at all times by appropriately qualified and rested personnel in all foreseeable circumstances.

3.5 In circumstances where the Regulations cannot be met there should be established procedures and contingencies in place to ensure that the vessel is brought to or remains in a place of safety until a safe navigational watch can be established. In some circumstances this may require delay to a vessel's departure.

3.6 Watchkeepers should ensure they remain alert by moving around frequently and ensuring good ventilation. Marine Accident Investigation Branch (**MAIB**) reports have shown that it is all too easy to fall asleep, especially while sitting down in an enclosed wheelhouse.

3.7 The OOW shall be free from the effects of alcohol and any other substance, including prescription drugs or other medication that may have a detrimental effect on the officer's judgments.

4.0 Performing the Navigational Watch

4.1 The officer of the navigational watch shall:

- keep the watch on the bridge
- in no circumstances leave the bridge until properly relieved by an appropriate officer
- continue to be responsible for the safe navigation of the vessel despite the presence of the Master on the bridge until informed specifically that the Master has assumed the con and this is mutually understood
- notify the Master when in any doubt as to what action to take in the interests of safety
- continue to be responsible for the safe navigation of the vessel despite the presence of a pilot on board
- if in any doubt as to the pilot's actions or intentions, seek clarification from the pilot; if doubt still exists, they should notify the Master immediately and take whatever action is necessary until the Master arrives
- not undertake any other duties that would interfere or compromise the keeping of a safe navigational watch
- ensure there are no distractions caused by the use of domestic radios, cassettes, CD players, personal computers, television sets, mobile phones, etc
- have available at all times, the services of a qualified helmsman

- in areas of high traffic density, in conditions of restricted visibility and in all hazardous navigational situations ensure the vessel is in hand steering

- keep in mind that the perceptions of watchkeeping officers on different types and sizes of vessels may vary considerably when assessing a close quarter situation and the time in which avoiding action should be taken

- keep a proper record during the watch on the movement and activities relating to the navigation of the vessel

- station a person to steer the vessel and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner. Officers are further reminded that when the vessel is in automatic steering it is highly dangerous to allow a situation to develop to the point where the OOW is without assistance and has to break the continuity of the look-out in order to take emergency action

- use the radar at all times in areas of high traffic density and whenever restricted visibility is encountered or expected and shall have due regard to its limitations. Radar should be available for use at all times to enable the officers to use the equipment in clear weather so as to fully appreciate the limitations of the equipment

- at sufficiently frequent intervals during the watch check the vessel's position, course and speed using all appropriate navigational aids and means necessary to ensure that the vessel follows the planned track

- take fixes at frequent intervals. These fixes shall be carried out by more than one method whenever circumstances allow. The largest scale chart on board, suitable for the area and corrected with the latest available information shall be used. This includes local navigation warnings, and temporary and preliminary notices to mariners

Mariners are also reminded of the requirement to use the latest editions of all supporting navigational publications such as charts, list of lights, list of radio signals, pilot books etc. Such publications should be fully corrected.

5.0 Watch Arrangements

5.1 The composition of a navigational watch should comprise one (or more) qualified officers supported by appropriately qualified ratings. The actual number of officers and ratings on watch at a particular time will depend on the prevailing circumstances and conditions.

5.2 At no time shall the bridge be left unmanned without a qualified watchkeeping officer.

5.3 Factors to be taken into account when composing a bridge watch:

- fatigue

- weather conditions and visibility

- proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties

- use and operational condition of navigational aids

- whether the vessel is fitted with automatic steering

- whether there are radio duties to be performed

- unmanned machinery space (**UMS**) alarms, controls and indicators provided on the bridge, procedures for their use and limitations
- any unusual demands on the navigational watch that may arise as a result of special operational circumstances

In circumstances where a single man bridge is considered permissible support personnel should be readily and immediately available should assistance be required. There should be an established and continuously available means of communications for the watchkeeper to summon such assistance at all times.

6.0 Handing Over the Watch

6.1 The OOW shall:

- ensure that the members of the relieving watch are fully capable of performing their duties
- ensure that the vision of the relieving watch is fully adjusted to the light conditions
- ensure that all standing orders and the Master's night orders are fully understood

6.2 The OOW shall not hand over the watch:

- if there is reason to believe that the relieving officer is not capable of carrying out the watchkeeping duties effectively, in which case the Master should be notified
- when a manoeuvre is in progress until such action has been completed

7.0 Taking Over the Watch

7.1 The relieving officer shall:

- prior to taking over the watch verify the vessel's estimated or true position
- confirm the vessel's intended track, course and speed
- note any dangers to navigation expected to be encountered during the watch
- be aware of prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed
- note any errors in gyro and magnetic compasses
- note the status of all bridge equipment
- note the settings of bridge/engine controls and manning of engine room
- be aware of the presence and movement of vessels in sight or known to be in the vicinity
- give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe navigational watch, including maintenance of a proper look-out

8.0 Look-out

8.1 The ColRegs require that every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of risk of collision.

8.2 The look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken that could interfere with that task. The duties of the look-out and helmsman are separate and the helmsman should not be considered to be a look-out except in small vessels where an un-obstructed all round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out.

8.3 In certain circumstances of clear daylight conditions the Master may consider that the OOW may be the sole look-out. On each occasion the Master should ensure that:

- The prevailing situation has been carefully assessed and it has been established without a doubt that it is safe to do so;
- Full account has been taken of all relevant factors including but not limited to:
    - state of the weather
    - visibility
    - traffic density
    - proximity of dangers to navigation
    - the attention necessary when navigating in or near traffic separation schemes
    - design and layout of the bridge
    - arcs of visibility
    - radar equipment fitted and their limitations with respect to navigation
    - other duties that the officer may have to engage in and which could be a distraction from the keeping of a proper look-out such as:
        - operation of GMDSS and other communications equipment such as cell phones and email systems
        - navigational maintenance such as completion of logs and other record keeping and correction of charts and publications
        - routine testing and maintenance of bridge equipment

In any event, an OOW acting as sole look-out should always be able to fully perform both the duties of a look-out and those of keeping a safe navigational watch. Assistance must be immediately available to be summoned to the bridge when any change in the situation so requires.

8.4 It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper look-out is maintained. In vessels with a separate chartroom the officer in charge of the navigational watch may visit the chartroom, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that a proper look-out is maintained.

9.0 Relationship Between the OOW and Look-out

9.1 The OOW should consider the look-out as an integral part of the Bridge Team and utilise the look-out to the fullest extent.

9.2 As a way of fully engaging the look-out's attention consideration should be given to keeping the look-out appraised of the current navigational situation with regard to expected traffic, buoyage, weather, landfall, pilotage and any other circumstance relevant to good watchkeeping.

10.0 In Restricted Visibility

10.1 When restricted visibility is encountered or expected, the first responsibility of the OOW is to comply with the ColRegs with particular regard to the keeping of a look-out, sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre.

10.2 In addition the OOW shall:

- inform the Master
- ensure that a dedicated look-out is posted at all times
- exhibit navigation lights
- operate and use the radar
- put the engines on standby

11.0 Safe Speed and Stopping Distance

11.1 The ColRegs require that every vessel shall at all times proceed at a safe speed so that proper effective action can be taken to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

11.2 In cases of need, the OOW shall not hesitate to use the engines to reduce speed further and allow more time for consideration and assessment of a developing situation. However, timely notice of the intended variations of engine speed shall be given to the engineers where possible or effective use made of UMS engine controls.

11.3 Whatever the pressure on Masters to make a quick passage or to meet the wishes of owners, operators, charterers or port operators, it does not justify vessels and those on board them being unnecessarily put at risk. The MCA is concerned that proper standards be maintained and will take appropriate action against officers who jeopardize their vessels or the lives and property of others. Such action may lead to fines and/or the suspension or cancellation of their certificates.

11.4 In the well known case of THE LADY GWENDOLEN, the Court of Appeal stated that "excessive speed in fog is a grave breach of duty and vessel owners should use their influence to prevent it." Because of their failure to do so, it was held in that case that the owners could not limit their liability.

12.0 Vessel at Anchor

12.1 The OOW shall:

- determine and plot the vessel's position on the appropriate chart as soon as practicable

- when circumstances permit, check at sufficiently frequent intervals whether the vessel is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects. The use of carefully chosen transits can give an almost instant indication as to whether the vessel's position has changed

- ensure that a proper look-out is maintained

- ensure that inspection rounds are made periodically

- observe meteorological and tidal conditions and state of sea, notify the Master and undertake all necessary measures if the vessel drags anchor

- ensure the state of readiness of the main engines and other machinery complies with the Masters requirements

- ensure the vessel exhibits the appropriate lights and shapes and that appropriate ColRegs sound signals are made

- avoid placing reliance on guard zones when using radar in lieu of a look-out as this is not considered acceptable practice.

In all the above circumstances it remains the Master's responsibility to ensure that the anchor watch to be kept is appropriate to the prevailing conditions.

13.0 Certification

13.1 The Regulations require that any officer in charge of a navigational watch shall be duly qualified in accordance with the requirements of STCW 95. It is the responsibility of the owner or operator, and Master to ensure that every navigational watchkeeping officer is appropriately qualified with respect to the size of the vessel and limitations in area of operation. Under no circumstances is it permitted for an un-qualified person to take charge of a navigational watch.

13.2 Similarly STCW 95 Section A-II/4 requires that every rating forming part of a navigational watch on a seagoing vessel of 500gt or more shall be required to demonstrate competence in the duties associated with the keeping of a safe navigational watch at the support level. This competence is evidenced by the issue of a Navigational Watch Rating Certificate. No rating should be assigned to navigational watchkeeping duties unless suitably qualified.

13.3 A qualification demonstrates that the holder has reached a minimum level of competence as defined in STCW 95. However, it does not imply that the holder has achieved all the necessary management or operational experience particular to a vessel, its operation or operational area. In considering an officer's or rating's qualifications due consideration should also be given to an individual's experience with respect to the vessel type and/or area of operation(s). In some circumstances it may be prudent to 'double-up' a watch or provide additional supervision to a qualified watchkeeper whilst particular operational experience is achieved.

Further Information

Further information on the contents of this Notice can be obtained from:

Seafarer Training and Certification Branch
Maritime and Coastguard Agency
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel : +44 (0) 23 8032 9231
Fax : +44 (0) 23 8032 9252
e-mail: exams.section@mcga.gov.uk

General Inquiries: 24 Hour Infoline
infoline@mcga.gov.uk
0870 600 6505

MCA Website Address: www.mcga.gov.uk

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Annex

Mariner’s attention is drawn to the following publications relating to this notice:

- International Regulations for Preventing Collisions at Sea 1972 (ColRegs)
- STCW 95, Code Sections A-VIII/2 Part 3, 3-1,3-2 and A-II/4
- ICS Bridge Procedures Guide

Annex H

Appendix III of MGN 324 (M+F) Radio: Operational Guidance on the Use of VHF Radio and Automatic Identification Systems (AIS) at Sea

APPENDIX III

OPERATION OF AIS ON BOARD

(Extract from IMO Resolution A.917. (22). Guidelines for the onboard operational use of shipborne Automatic Identification Systems (AIS) (Adopted on 29th November 2001). As amended by Resolution A.956. (23). (Adopted 5th December 2003).

INHERENT LIMITATIONS OF AIS

31. The officer of the watch (OOW) should always be aware that other ships, in particular leisure craft, fishing boats and warships, and some coastal shore stations including Vessel Traffic Service (VTS) centres, might not be fitted with AIS.
32. The OOW should always be aware that other ships fitted with AIS as a mandatory carriage requirement might switch off AIS under certain circumstances by professional judgement of the master.
33. In other words, the information given by the AIS may not be a complete picture of the situation around the ship.
34. The users must be aware that transmission of erroneous information implies a risk to other ships as well as their own. The users remain responsible for all information entered into the system and the information added by the sensors.
35. The accuracy of the information received is only as good as the accuracy of the AIS information transmitted.
36. The OOW should be aware that poorly configured or calibrated ship sensors (position, speed and heading sensors) might lead to incorrect information being transmitted. Incorrect information about one ship displayed on the bridge of another could be dangerously confusing.
37. If no sensor is installed or if the sensor (e.g. the gyro) fails to provide data, the AIS automatically transmits the 'not available' data value. However the built in integrity check cannot validate the contents of the data processed by the AIS.
38. It would not be prudent for the OOW to assume that the information received from the other ship is of a comparable quality and accuracy to that which might be available on own ship.

USE OF AIS IN COLLISION AVOIDANCE SITUATIONS

39. The potential of AIS as an anti collision device is recognised and AIS may be recommended as such a device in due time.
40. Nevertheless, AIS information may be used to assist collision avoidance decision making. When using the AIS in the ship to ship mode for anti collision purposes, the following precautionary points should be borne in mind:
    a. AIS is an additional source of navigational information. It does not replace, but supports, navigational systems such as radar target tracking and VTS; and
    b. The use of AIS does not negate the responsibility of the OOW to comply at all times with the Collision Regulations
41. The user should not rely on AIS as the sole information system, but should make use of all safety relevant information available
42. The use of AIS on board ship is not intended to have any special impact on the composition of the navigational watch, which should be determined in accordance with the STCW Convention.
43. Once a ship has been detected, AIS can assist tracking it as a target. By monitoring the information broadcast by that target, its actions can also be monitored. Changes in heading and course are, for example, immediately apparent, and many of the problems common to tracking targets by radar, namely clutter, target swap as ships pass close by and target loss following a fast manoeuvre, do not affect AIS. AIS can also assist in the identification of targets, by name or call sign and by ship type and navigational status.

Annex I

Extracts from Guidelines on the application of the IMO International Safety Management (ISM) Code

3.4 AUDITS AND REVIEWS

Over time, most Companies have found that their SMS continues to improve with fewer problems being identified and fewer accidents and hazardous occurrences/near misses occurring. Audits and reviews of the SMS, whether internal or external, should not therefore be feared, rather they should be viewed as opportunities to learn and improve. While in a perfect world non-conformities would not arise, this is not the reality. When they are identified, it is very important to avoid blaming individuals for allowing the non-conformity to occur. Instead the Company and all personnel involved should endeavour to understand **why** the non-conformity arose in order that appropriate corrective action can be taken.

Observations can be used for continuous improvement and development of best practice.

3.4.1 Master's Reviews

The ISM Code requires the Company to define and document the Master's responsibility with regard to 'reviewing the Safety Management System and reporting its deficiencies to the shore based management'. The opportunity provided by the Master's formal review should not be underestimated, allowing the Master and those on board ship to increase their sense of ownership of the SMS. Suggestions from the Master about potential improvements to the SMS should be taken seriously by the Company.

In some Companies it is common practice to schedule a Master's review of the SMS on each ship once every 12 months, and the interval should not be greater than this. However, in Companies where the full potential of the Master's review has been recognised, this exercise is carried out more frequently and as an integral part of the management of safety. In such Companies, a Master joining a vessel will conduct a review of the SMS at the earliest realistic opportunity, establishing the current status of the SMS and identifying any weaknesses. In consultation with the DPA, the Master can then take necessary steps to implement the appropriate corrective action.

Towards the end of the Master's tour of duty a further review might be conducted to confirm that the corrective actions have been successful and that no new problems have developed.

The review may then be passed to the next Master as a starting point for the next review. The existence of such reviews is also a valuable reference tool for the DPA or Company auditor when conducting internal audits.

3.4.2 Management Reviews

The ISM Code also requires the Company to evaluate periodically the effectiveness of the SMS. The Code does not go into details to explain how the Company should do this, but leaves Companies to decide and formulate procedures to ensure that it is done.

Common good practice is for such review meetings to be held ashore at least once every 12 months. If problems are identified within the SMS, or there is a serious accident or near miss, then additional review meetings may be held.

It is important that management review meetings are taken very seriously by the Company. It is recommended that a dedicated meeting is held with the entire agenda focused on the SMS implementation and compliance, and that the practice of including the SMS Review as just one agenda item on a wider general management meeting should be avoided.

Depending upon the size and structure of the Company, it may be appropriate to have a number of focused management review meetings examining, for example, specific parts of the fleet which then feed back into a larger, more general, management review providing an overview of the entire Company.

Management reviews should normally be led by the DPA, or senior DPA, and should be attended by the highest levels of management as well as line managers, superintendents and sea staff. In many Companies, review meetings are chaired by the most senior person responsible for the Safety Management System e.g. the Managing Director. They should be seen as strategic planning meetings where policy decisions can be made to address any issues or problems which may have become apparent, or generally to improve the way in which safety is managed within the Company.

The conduct of management reviews for compliance with the ISM Code need not be limited only to the assessment of documents and paper records. Consideration of the effectiveness of the SMS can be enhanced by use of various monitoring techniques. Such techniques can be varied, should be openly practised and known to Company personnel. For example, they might include formally reviewing mandatory monitoring equipment records such as those from Voyage Data Recorders (VDR), downloaded at random intervals from the Company's ships.

All involved should understand that such monitoring is a means of assessing the effectiveness of the SMS and will not be used by the Company as an opportunity to 'spy' on ships personnel. Other benefits that can be gained from applying such techniques include being able to determine the effectiveness of Company training programmes, and developing improvements when required.

Minutes should be kept to record the decisions taken with regard to improving safety and pollution prevention within the Company. The Company may find it useful to consider communicating its commitment to safety and environmental protection by making summaries of the conclusions of the management review meetings available to all sea and shore staff.

3.4.3 Internal Audits

Detailed guidance on the conduct of internal audits of the SMS is contained in Section 6.4 of these guidelines.

3.4.4 External Audits

In addition to external audits conducted for statutory purposes by the flag Administration or by a Recognized Organization acting on its behalf, an audit of the SMS may be carried out by a number of other organisations including port state control authorities, charterers, and other third parties acting, for example, on behalf of a P&I Club, hull underwriter or bank.

It should be noted that port state control authorities now pay particular attention to identifying ISM Code deficiencies, which are an increasingly common cause for ship detentions. If port state control officers have suspicions about whether a ship is fully compliant with safety and pollution regulations, they increasingly choose to look at SMS documentation as a ready means of seeking confirmation of their suspicions.

If the SMS is working as intended and regular internal audits have been conducted then notice of a pending external audit should not be a cause for concern.

If non-conformities, or deficiencies are identified during external audits, then the Company should examine the way in which its own internal auditing and Masters' reviews are conducted, and establish why the issue in question was not identified earlier. In some cases, the explanation may relate to the practice of repeatedly conducting the same 'sample audits' during internal reviews rather than varying sample audit areas to ensure effective monitoring of the entire SMS.

Annex J

Extracts from the ICS's Bridge Procedures Guide

Under no circumstances should additional duties interfere with the exercise of primary duties.

Mobile phones or other personal electronic devices should be used only under circumstances approved by the master. The potential distraction to personnel on the bridge caused by the use of mobile phones or other electronic devices should be considered when determining shipboard policy.

3.1.5 Bridge attendance

The OOW should not leave the bridge unattended. However, in a ship with a separate chartroom, the OOW may visit that room for short periods of time to carry out necessary navigational duties after first ensuring that it is safe to do so.

3.2 WATCHKEEPING

3.2.1 Maintaining a look-out

In compliance with the COLREGS, a proper look-out must be maintained at all times to serve the purposes of:

- maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment;
- fully appraising the situation and the risk of collision, stranding and other dangers to navigation;
- detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to navigation, and to allow precautions for security reasons, especially in areas with a known risk of piracy or armed attack.

Full attention to look-out duties must be given by the bridge team on watch. Section 3.2.6 (Changing over the watch) includes advice regarding the need to allow sufficient time, during the hours of darkness, for the vision of oncoming watchkeepers to adjust to ambient light conditions. During the hours of darkness, it is essential that the wheelhouse environment and shipboard procedures support the maintenance of adequate night vision for watchkeepers and look-outs. An effective wheelhouse and chartroom blackout should be maintained; lighting used in such areas should be of low intensity and coloured red. The use of blackout curtains or heavy drapes will help to preserve darkness integrity when it is not possible fully to otherwise exclude conventional artificial light. Deck lighting should be considered carefully to avoid adversely affecting night vision from the wheelhouse, even if such lighting only affects a restricted sector of the horizon.

It should be noted that even momentary exposure to bright light can completely destroy night vision and, during the subsequent readjustment period, the ability to maintain an effective look-out will be impaired. Consideration should be given to fitting cut-out switches to doors leading into wheelhouses and chartrooms so that on opening such doors adjacent conventional white light sources are momentarily switched off.

While steering, a helmsman should not be considered to be the look-out, except in small ships with an unobstructed all-round view at the steering position.

On ships with fully enclosed bridges and all windows closed, sound reception equipment will need to be in operation continuously and correctly adjusted to ensure that all audible sounds on the open deck can be heard clearly on the bridge.

3.2.1.1 Sole look-out

Under the STCW Code, the OOW may be the sole look-out in daylight provided that on each such occasion:

- the situation has been carefully assessed and it has been established without doubt that it is safe to operate with a sole look-out;
- full account has been taken of all relevant factors, including, but not limited to:
  - state of weather
  - visibility
  - traffic density
  - proximity of dangers to navigation
  - the attention necessary when navigating in or near traffic separation schemes;
- assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

If sole look-out watchkeeping practices are to be followed, clear guidance on how they should operate will need to be given in the shipboard operational procedures manual (see section 1.2.4).

3.2.2 General surveillance

The OOW needs to maintain a high level of general awareness about the ship and its day-to-day operations.

This may include maintaining a general watch over the ship's decks to monitor, where possible, people working on deck and any cargo or cargo handling equipment. Special watchkeeping arrangements may be appropriate in waters where there is thought to be a risk of piracy or armed attack.

Whenever work is being carried out on deck in the vicinity of radar antennae, radio aerials or sound signalling apparatus, the OOW should be particularly observant and should post appropriate warning notices on the equipment controls.

3.2.3 Watchkeeping and the COLREGS

3.2.3.1 Lights, shapes and sound signals

The OOW must always comply with the COLREGS. Compliance not only concerns the conduct of vessels under the steering and sailing rules, but also displaying the correct lights and shapes and making the correct sound and light signals.

A vessel drifting off a port with her engines deliberately shut down, but available for immediate restart, is not, for example, a "vessel not under command" as defined by rule 3(f) of the COLREGS.

Caution should always be observed when approaching other vessels. Vessels may not be displaying their correct light or shape signals, or indeed their signals could be badly positioned and obscured by the ship's structure when approached from certain directions. In sea areas where traffic flow is regulated, such as port approaches and traffic separation schemes, it may be possible to anticipate movements from certain ship types. In these circumstances, it is prudent to allow extra searoom, as long as it is safe to do so.

3.2.3.2 Collision avoidance action

In general, early and positive action should always be taken when avoiding collisions and, once action has been taken, the OOW should always check to make sure that the action taken is having the desired effect.

VHF radio should not be used for collision avoidance purposes. Valuable time can be wasted attempting to make contact since positive identification may be difficult and, once contact has been made, misunderstandings may arise.

Attempts to avoid collision by communicating using AIS equipment should be avoided. Accident investigations have shown that such attempts waste time, distract the attention of the OOW and often fail to establish effective communication.

3.2.3.3 Collision avoidance detection

In clear weather, the risk of collision can be detected early by taking frequent compass bearings of an approaching vessel to ascertain whether or not the bearing is steady and the vessel is on a collision course. Care however must be taken when approaching very large ships, ships under tow or ships at close range. An appreciable bearing change may be evident under these circumstances but in fact a risk of collision may still remain.

In restricted visibility, conduct of vessels is specifically covered by the COLREGS. In these conditions, radar, and in particular electronic radar plotting, can be used effectively for assessing risk of collision. The OOW should take the opportunity to carry out radar plotting practice in clear visibility whenever it is possible.

For details concerning the use of radar for collision avoidance, refer to section 4.2.2 of this Guide.

3.2.4 Recording bridge activities

It is important that a proper, formal record of navigational activities and incidents, which are of importance to safety of navigation, is kept in appropriate logbooks.

Paper records from course recorders, echo sounders, NAVTEX receivers etc. should also be retained at least for the duration of the voyage, suitably date and time marked if practicable.

In order to allow the ship's actual track to be reconstructed at a later stage, sufficient information concerning position, course and speed should be recorded in the bridge logbook or using approved electronic means. All positions marked on the navigational charts also need to be retained until the end of the voyage.

3.2.5 Periodic checks on navigational equipment

3.2.5.1 Operational checks

Operational checks on navigational equipment should be undertaken when preparing for sea (see bridge checklist B2) and prior to port entry (see bridge checklist B3).

- echoes may be obscured by sea or rain clutter: the careful use of clutter controls will assist;
- masts or other structural features may cause shadow or blind sectors on the display: the OOW should be aware of these sectors.

4.2.1.1 Clear weather practice

Operating the radar at sea in clear weather will provide an opportunity for watchkeepers to practise their radar collision avoidance and navigation skills; for example, radar observations and target vectors can be checked visually. Regular practice of parallel indexing techniques in clear weather and safe waters should provide watchkeepers with improved ability in this form of track monitoring.

4.2.1.2 Range scales

The choice of range scales will depend upon factors such as traffic density, speed of own ship and how often the radar is being observed.

Detection of targets, particularly small targets, is generally better at short ranges. However, if the radar is to be used for plotting, it is not advisable to use a scale that is too short.

Advance warning of approaching vessels and land is an important factor in deciding upon a safe speed, and requires the monitoring of longer range scales.

4.2.2 Radar and collision avoidance

4.2.2.1 Accuracy of own ship speed and heading inputs

In radar plotting, measurement of the course, speed and aspect of a target is used to determine the closest point of approach of that target and to indicate whether or not there is a risk of collision.

The accuracy of the target plot will depend upon an accurate input of own ship's course and speed during the plotting interval; a yawing ship or inaccurate speed and heading inputs into the radar will reduce the accuracy of calculated target vectors.

Plot inaccuracies will be most apparent in head-on situations and may make a target appear to be passing clear when in fact it is crossing ahead or nearly ahead.

4.2.2.2 The plotting period

A single observation of the range and bearing of a target cannot give any indication of target course and speed. Multiple observations are required, and the longer the plotting period, the greater will be the accuracy.

Accuracy in the plot will however be lost if either own ship or the target changes course or speed during the plotting period. A change in the course or speed of the target may not be immediately detected.

The estimation of the course and speed of the target and risk of collision is only valid up to the time of the last observation. The situation must therefore be kept closely under review.

4.2.2.3 Changing target bearing

It should not be assumed that, because the relative bearing of a target is changing, there is no risk of collision. An alteration of course and/or speed of own ship may alter the relative bearing and, at close quarters, risk of collision can exist even with a changing compass bearing (see section 3.2.3.3).

Annex K

ICS Circular MC(11)07

International Chamber of Shipping

12 Carthusian Street London EC1M 6EZ

Tel +44 20 7417 8844
Fax +44 20 7417 8877

ics@marisec.org www.marisec.org www.shippingfacts.com

19 January 2011

To: **MARINE COMMITTEE** **MC(11)07**

Copy: **All Full and Associate Members (for information)**
Radio and Nautical Sub-Committee

MAIB ACCIDENT REPORT - FISHING VESSEL HOMELAND AND THE RO-RO PASSENGER VESSEL SCOTTISH VIKING

Action required: Members are invited to note and to disseminate widely notification of the outcome of the United Kingdom's MAIB accident report regarding the fishing vessel 'Homeland' and the ro-ro passenger vessel 'Scottish Viking' that resulted in the loss of the fishing vessel with one fatality.

Members will recall that a number of recent MAIB accident reports have identified navigation failings as the immediate cause of several serious accidents, the MAIB has reported a further such incident.

The fishing vessel '*Homeland*', was in collision with the ro-ro passenger vessel '*Scottish Viking*', the fishing vessel was lost and its crew member was killed. Factors identified that led to the collision included the fishing vessel not determining at an early stage if there was a risk of collision together with a failure to maintain a proper lookout. The report also found complacency amongst the ro-ro vessel's bridge team together with a lack of precautionary thought and ineffective implementation of the Company's navigational policy and procedures. In particular the ro-ro ship did not, determine at an early stage if there was a risk of collision, sufficiently monitor or plot the other vessel's track and, once a risk of collision was deemed to exist, the '*Scottish Viking*' failed to take sufficient action to avoid collision.

The MAIB investigation has highlighted a number of failures by one or both vessels. The failures listed below relate to basic requirements necessary to achieve safe navigation and compliance with the 'International Regulations for Preventing Collisions at Sea'.

The ships involved in this collision failed to:

- **Maintain a lookout** – need for early detection and monitoring.
- **Ascertain the risk of collision** – need to use radar, undue reliance on AIS rather than visual / radar monitoring.
- **Take appropriate action to avoid collision** – need for early action, the need for precautionary thinking and to encourage navigators to develop an approach that asks, what if?
- **Use a helmsman** – need for hand steering at an early stage to enable immediate course alteration while maintaining situational awareness.
- **Make appropriate sound signals** – need for correct signals to avoid misunderstanding of intentions.
- **Implement procedures** – need for master's oversight and enforcement, need for company ship-riding audits, need to use VDR for audits.

ICS has particular concern that this MAIB and other recent reports confirm AIS is increasingly used as a navigational tool to determine the risk of collision to the exclusion of making safe and effective use of radar and ARPA. IMO Resolutions A.917(22) and A.956(23) note that:

- Not all ships are fitted with AIS
- The officer of the watch (OOW) should always be aware that other ships, in particular leisure craft, fishing boats and warships, and some coastal inshore stations including Vessel Traffic Services centres, might not be fitted with AIS.
- The OOW should always be aware that AIS fitted on other ships as a mandatory carriage requirement might, under certain circumstances, be switched off on the master's professional judgement.

Members will be aware that ICS produces a number of industry best practice guidelines including the Bridge Procedures Guide and Guidelines on the Application of the IMO International Safety Management (ISM) Code. The MAIB investigation confirms that many of the recommendations in the ICS *et al* publications were not complied with.

MAIB safety flyer to the fishing industry

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

FLYER TO THE FISHING INDUSTRY

HOMELAND: COLLISION WITH *SCOTTISH VIKING* RESULTING IN TOTAL LOSS OF THE VESSEL AND ONE FATALITY

At 1946 on 5 August 2010, the UK registered fishing vessel *Homeland* was in collision with the Italian registered ro-ro passenger ferry *Scottish Viking* about 4 miles off St Abb's Head. As a result of the collision, the fishing vessel sank. The skipper was recovered from the sea, but his brother lost his life.

Homeland had left the port of Eyemouth at about 1845, accompanied by two other fishing vessels, *Achieve* and *Seren y Don.* They were all headed towards the northern coast of the Firth of Forth.

After clearing Eyemouth harbour and when heading in a northerly direction, the skipper engaged the autopilot, set the radar at 1.5 miles range, and handed over the watch to his brother; a young lad of 16. The skipper then went to the aft deck to mend a torn net. Soon afterwards, he called his brother to assist him. This left the wheelhouse unattended for short periods of time. The skipper periodically scanned the horizon, but his all-round view was restricted by the shelter, fitted aft of the wheelhouse.

About a minute after his brother returned from the wheelhouse, the skipper heard what he thought were two blasts on a whistle. He also heard a transmission by *Achieve* on VHF radio channel 6 warning of an imminent collision with a large vessel. The skipper ran into the wheelhouse from where he saw the side of *Scottish Viking*. He put the engine astern and the wheel hard to port. Both *Achieve* and *Seren y Don,* who were following *Homeland,* took avoiding action by altering course to port.

Homeland's starboard bow struck *Scottish Viking,* and she immediately started taking on water. The skipper and his brother climbed onto the wheelhouse roof to deploy the liferaft, but the vessel sank beneath them. They both entered the water without having had time to don a lifejacket. The skipper surfaced and called for his brother, but did not hear or see him. Although an extensive search and rescue operation followed, his brother was not found.

Safety Lessons

Scottish Viking was the give-way vessel and although her watchkeeper had sighted the fishing vessels, he did not take early and sufficient action to avoid a collision. Nevertheless, a number of safety lessons relevant to the fishing industry are identified below:

1. One of the fundamental requirements of the International Regulations for Preventing Collisions at Sea 1972 (as amended) (COLREGS) is that vessels' crew maintain a proper lookout. If they do not, many of the regulations intended to avoid collisions in varying circumstances cannot be applied.

2. Marine Guidance Note (MGN) 313 (F) - Keeping a Safe Navigational Watch on Fishing Vessels provides essential guidance. It is important that crew standing a watch are experienced, capable and have been instructed in their duties. Above all, the wheelhouse should not be left unattended at any time.

3. The radar on *Homeland* was set on 1.5 miles range. This meant that *Scottish Viking*'s radar echo would not have appeared on *Homeland*'s radar display until about 3 minutes before impact. Watchkeepers need to use long-range scanning to provide an early warning of a risk of collision.

4. *Homeland* was the stand-on vessel in a crossing situation and was required to maintain her course and speed. Rule 17 (b) of the COLREGS requires action by a stand-on vessel when collision cannot be avoided by the give-way vessel alone. However, *Homeland*'s avoiding action was too late to prevent a collision.

5. Deck shelters are commonly found on fishing vessels. They significantly restrict an all-round view, and therefore a proper lookout cannot be maintained from within. Too many accidents occur when the watchkeeper leaves the wheelhouse unattended to work outside and becomes distracted.

6. This case highlights the lack of time available to crew in an emergency to locate and don a lifejacket. Routine wearing of a lifejacket by fishermen when working on deck can significantly improve survivability and detection by the rescue services when a vessel sinks rapidly.

This flyer and the MAIB's investigation report are posted on our website: www.maib.gov.uk

For all other enquiries:

Marine Accident Investigation Branch
Mountbatten House
Grosvenor Square
Southampton
SO15 2JU

Tel: 023 8039 5500
Fax: 023 8023 2459
Email: maib@dft.gsi.gov.uk

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