SHIPBOARD OPERATIONS

7 SHIPBOARD OPERATIONS

The day-to-day running of the Vessel is a chain of controlled actions and procedures that are inter-linked (in many instances) to all 3 departments. The jobs and tasks performed must always consider Safety First. The personnel assigned to undertake the task must be suitable and competent for the job. On hand experience on various company vessels and the number of years in the specific rank does qualify you to perform the specific job. However, it has been analyzed that many key operations require a step-by-step approach from Start to finish to ensure a SAFE OPERATION.

This plan involves:

- Personnel.
- Personal Safety Gear.
- Description of the job required to be undertaken.
- The possible hazards that may be encountered during the operation.
- The safety procedures to be undertaken throughout the operation.
- Necessary tools and/or equipment are in safe working condition.
- Monitoring of the job.
- Completion of the job.
- Reverting to normal status.
- See Gard Guidance to Master, Chapter 2.

7.1 Meetings

The Master and Chief Engineer should convene meetings of all Officers at regular intervals so that they may gain experience of Technical-Operational Meetings. Scheduled meetings must be held as far as practicable every 14 days.

7.2 Shore leave and visitors on board

7.2.1 Shore Leave

Shore leave granted to crew members in a foreign port is at the discretion of the Master and subject to the permission of local Immigration and Customs officials.

Crew members shall report back on board in accordance with the time posted on the sailing board, and the names of those missing shall be reported to the Master.
Masters and Chief Engineers are required to be on board at least one hour prior to departure to ensure that all is ready to sail.

Masters and/or Chief Engineers when going ashore, to leave with the Chief mate and/or First Engineer, an indication of where they can be reached in the event of an emergency.

7.2.2 Visitors on Board

It goes without saying that the master's permission should always be obtained before visitors are allowed on board.

All crew members, officers as well as ratings, should pass on their request for visitors to the Master well in advance.

Visits of wives and fiancés or other family relatives in port can be limited by the Master due to board and lodging restrictions.

Visitors will be restricted to accommodation and not allowed to stray into engine room, bridge or on deck adjacent to open hatches.

7.3 Key Procedures

Key procedures have been developed for all departments and are listed in this chapter and in QSMS: checklists/standing instructions/QSMS forms. If any step is not taken, or cannot be undertaken, work towards that job is to be halted; the department head is to be informed, and only after rectification or his approval (with relevant remarks) the procedure to be commenced/continued.

7.3.1 Details on Key Procedures

The list of Key Procedures for which Checklists and Standing Instructions have been provided arranged in the order as follows:

1. Abandon Ship
2. Anchoring
3. Anchor Watch
4. Blackout and Re-Setting (Bridge)
5. Blackout and Re-Setting (Engine Room)
6. Bridge Pre-Arrival/Departure
7. Bunker/Sludge Transfer
8. CA Start-Up Checklists
9. CA Shutdown Checklists
10. Changing Over to Unmanned Machinery Space
11. Collision (Imminent Danger)
12. Collision Checklists and Standing Instructions
13. Damage Control Procedures Guidelines
14. High Voltage permit to work
15. Dry docking Guidelines
16. Enclosed Space Entry Permit
17. Engine-Crankcase Explosion
18. Engine-Exhaust Boiler Fires
19. Engine Failure
20. Engine Routines for Arrival
21. Engine Routines for Departure
22. Engine Scavenge Air Box Fires
23. Familiarization Form for Deck Officer's
24. Familiarization Form for Engineer Officers
25. Familiarization Form for Electrical Officers (Safety)
26. Familiarization Form for Officers (Safety)
27. Familiarization Form for Ratings (Safety)
28. Fire
29. Flooding Contingency Plan
30. Gangways and Accommodation Ladders Safe Access
31. Gantry Crane Positioning for 2 Adjacent Hatches
32. Gantry Crane Securing/Un-Securing
33. Gyro Compass Failure
34. Hot Work Permit
35. Lifeboat Launching/Free Fall
36. Lifeboat Launching/Regular
37. Man overboard

38. NA-Plant Start-Up/Shut Down
39. Narcotics/Contraband/Stowaway
40. Navigating in Congested/Coastal Waters/TSS
41. Navigating in Heavy Weather
42. Navigating in Restricted Visibility
43. Navigating/Taking over Sea Watches
44. Passage Plan
45. Pilot Chart/Navigation under Pilotage
46. Hazard Observation Card
47. Rescue Boat Launching Contingency Plan
48. Rest Periods Recording for Watch Keepers
49. Side Door Operation
50. SOLAS/MARPOL Maintenance Log
51. Steering Gear Test/Emergency Operations
52. Stowaway Questioner
53. Stranding
54. Unaccompanied Exit from Accommodation
55. Weather Precautions-Winter/Cold
56. Winter/Navigating in Ice
57. Working Over side/Aloft
58. Record of Risk Assessment
59. Diver/Underwater Operations
60. Alternate Maritime Power

The checklists and Standing Instructions are detailed in QSMS manual: Checklists / Standing Instructions. The Master is to ensure that the QSMS manual: Checklist/Standing Instructions is kept in good order

RISK ASSESSMENT (effective 1 July 10)

In compiling the above Key and Contingency Procedures Check Lists and Standing Instructions, the principle of ensuring safeguards against identified hazards and assessed risks was used.

However, effective Jul 2010 it is mandatory that Risk Assessment undertaken for routine and other tasks performed on board the vessel be systematic and recorded.

Risk Assessments for tasks being undertaken using the above checklists and instructions should therefore be reviewed periodically using the guidelines in Section 7.11.3 of this Chapter and the RA Form (Checklist #58). The record of all such assessments, reviews, and measures implemented to minimize/eliminate the consequences is to be maintained in the RISK ASSESSMENT folder *or* attached to the Checklist of the task being undertaken.

Section 7.11 describes the principles of and procedures for conducting and recording Risk Assessments

7.3.2 Deck/Engine and Radio Logbooks

It is impossible to exaggerate the importance of Logbooks and the necessity of ensuring that they are written comprehensible and accurately. As a successful insurance claim can largely depend on a correctly worded Logbook entry, any incident to be recorded by a relatively inexperienced Officer should be subject to the guidance and/ or approval of the Master or Chief Engineer to ensure that it does not prejudice the Owner's interest. All Logbooks shall be completed strictly in accordance with Flag State and International requirements and the practice of seamen.

The Deck and Engine Logbooks are to be carefully maintained by the Officer in Charge of the watch at sea or in port.

If, for any reason, it is necessary to make an alteration to any entry in a Logbook, the original entry should be ruled through in such a manner that it is still legible, and the correction inserted. Such alterations must be signed by the Officer making them and countersigned by the Master/ Chief Engineer. The date and time of such alterations must be noted in the margin, together with an explanation of the alteration, should this be considered necessary. Entries to be corrected must never be erased. If a Logbook does not contain sufficient space for an entry to be made, a new Logbook must be commenced; on no occasion must loose sheets be inserted into any Logbook.

Completed Logbooks should be retained onboard and kept a part of the permanent ship's records.

In the event the vessel is operated with a periodically unattended engine room, the data logger is to be set to print every four hours. Any supplementary information required, that is not printed by the data logger, should be entered manually in the Engine Logbook. Data logger printouts are to be retained on board for a period of 3 years after which they may be discarded. (See Chapter 11.10)

Complete details in Abstract of Deck/Engine Logs and voyage particularly should be referred to Ship's Instruction Manual

7.4 Bridge Operations.

7.4.1 Bridge Resource Management

An effective bridge organization will include procedures that:

- Consider unforeseen events which may develop into a serious and difficult situation.
- Require the skills, abilities, and effective communication of all bridge team members
- Eliminate the risk that an error on the part of one person may result in a disastrous situation.
- Emphasize the necessity to maintain a good visual lookout and to carry out collision avoidance routines.
- Encourage the use of all means of establishing the ship's position so that in the case of one method becoming unreliable others are immediately available.
- Make use of passage planning and navigational systems which allow continuous monitoring and detection of deviation from the track when in coastal waters.
- Ensure that all instrument errors are known and correctly applied.

These procedures can only be achieved by each member of the bridge team realizing that he has a vital part to play in the safe navigation of the ship and that safety depends upon all personnel playing their part to the utmost of their ability.

Each team member must appreciate that the safety of the ship should never depend upon the decision of ONE person only. All decisions and orders should be carefully checked. Junior team members must never hesitate to question a decision made by a senior member if they consider that decision is not in the best interests of the ship

The watch Officer has responsibility for his watch but must rely upon the assistance of the lookout and or the helmsman. He must ensure that the orders are correctly followed. Calling the Master to the bridge will not automatically transfer the conn from the watch officer to the Master. Until such time as the Master declares that he has taken the conn, the watch officer must still carry out his duties as he was prior to the Masters arrival. Once the Master has taken the conn and event logged, then the watch officer moves into a supportive role.

The Master controls the movements and navigates the vessel in accordance with the rules of the road and recommended traffic schemes. The watch officer continues to report relevant information to the Master, ensuring that such information is acknowledged. He will fix the own vessel, advise the position and other information, record all required entries in the logbook, and perform other duties as required by the Master.

Navigation in confined waters carries extreme risks such as:

- Grounding
- Collision and contact with other ships, floating and fixed objects
- Damage to the marine environment

These risks can be minimized if the Master operates proper BRM because it focuses on the use and co-operation of all the skills and resources available to the bridge team to achieve goals of:

- Safety and efficiency

It requires delegation of tasks. To avoid any uncertainty or irregularity which could have a disastrous result:

- The task should be clearly defined
- Navigation maneuvers must be monitored
- Information should be clearly confirmed by the recipient
- Continuous progress reporting is required

7.4.1.(a) Safe Navigation

The safe navigation of the vessel is of the utmost importance and the safety of the vessel, cargo and the lives of all onboard is always to be considered the primary duty of the Master. The International Chamber of Shipping (ICS) "Bridge Procedures Guide" is to be fully consulted.

7.4.1.(b) Passage Plan

It has been adequately demonstrated that failure to prepare a detailed Passage Plan from Berth to Berth can have disastrous consequences. The Master is responsible for the development of the plan for the intended voyage, and continuous monitoring of the vessel's progress and position during execution of the plan is of essential importance for safety of life at sea, safety and efficiency of navigation and protection of the marine environment.

There are several factors that may impede the safe navigation of the vessel. These factors will need to be considered in the preparation of the plan and in the subsequent monitoring of the execution of the plan.

Passage planning includes appraisal, i.e. gathering all information relevant to the contemplated voyage. Based on the fullest possible appraisal a detailed passage plan shall be prepared which shall cover the entire voyage from berth to berth, including those areas necessitating the presence of a pilot, execution of the plan, and monitoring of the progress of the vessel.

The Master shall plan the voyage to avoid potentially severe weather and sea conditions. In cases where severe weather and sea conditions are unavoidable, master should be conscious of the need to reduce speed and / or alter courses at an early stage to minimize the forces imposed on the vessel, its cargo, and securing.

Master to refer to publications (such as Ocean Passage, Pilot Books, Tide Tables, light lists, lists of radio signals, appropriate scale, accurate and up-dated charts, Notice to Mariners, Ship's routing system, Routing Charts, Recommendations from weather routing, etc.) at his disposal.

And you should consider:

- Condition and state of the vessel, stability, equipment operational limitation, draft, maneuvering data including any restrictions.
- Special characteristics of the cargo, distribution, stowage and securing.
- Provision for the competent and well-rested crew to undertake the voyage
- Up to date certificates and documents concerning the vessel, its equipment, crew, or cargo
- Pre-set courses with enough and safe shore clearance – only safe transit lanes should be used for passage.
- Traffic Separation scheme /traffic lines and recommended routes.
- Method and frequency of position fixing include primary and secondary options.
- Safe speed and minimum distances regarding proximity of navigational hazards along the route.
- NO GO areas, and areas to be avoided.
- Danger evaluation between waypoints.

Speed alterations in route, e.g. where there may be limitations because of night passage, tidal restrictions or due to squat or heel effect when turning etc.

- Positions where pilot embarkation /disembarkation or change in machinery status.
- Areas of high traffic density
- Prevailing tides, currents, and weather conditions be expected.
- Enough water depths.
- Underwater obstacles.
- Ship's routing and traffic separation schemes.
- Shore traffic control reporting points
- Communication channels
- Any regulations applicable to the waters to be navigated,
- Environmental and marine protected areas.

Contingency plan for the port of refuge or safe anchorage in the event of any emergencies.The passage plan is to be agreed and signed by all officers of the watch and finally approved by the master before the commencement of the voyage to eliminate the risk that an error by one person could result in a dangerous situation.

If a Pilot is to be used, information relating to pilotage (Pilotage Passage Plan) and embarkation, disembarkation including the exchange of information between Master and Pilot to be agreed upon before departure from Pilot boarding area or berth.

The Master to ensure that all navigation aids including communication devices are available, the ship propulsion and steering system are fully operational, and their operation and handling are fully understood by the officers in charge of the watch.

On the time of departure, when estimated time of arrival can be determined with reasonable accuracy, the voyage plan should be executed in accordance with the plan.
Factors that should be considered when executing the plan.

- Estimated time of arrival at critical points for tide heights.
- Meteorological conditions as well as weather routing information's
- Daytime versus nighttime passing of dangerous points, and any effect this may have on position fixing accuracy
- Traffic conditions, especially at navigational focal points

The Master shall also consider at which specific point of the voyage there may be a need to utilize additional deck or engine room personnel.

The progress of the vessel in accordance with the passage plan should be closely and continuously monitored**. Any changes made to the plan should be made consistent with these guidelines and clearly marked and recorded**

- Please also refer to the Key procedures/standing instructions, i.e.:
- Appraisal and checklist for passage planning,
- Bridge pre arrival/departure
- Navigating in coastal and Congested Waters
- Navigation under pilotage
- Heavy weather navigation
- Navigation in restricted visibility
- Navigation in Ice
- Taking over sea watch
- Information given/received from pilot

See checklist and IMO Resolution A 893 (21)

7.4.1.(c) UNDERKEEL CLEARANCE (UKC)

At all times (in open sea, in port approaches and while the vessels are alongside) UKC must be commensurate with conditions and where appropriate with Pilots advice. When planning passages and considering UKC the following elements should be taken into consideration:

- The predicted height of tide,
- Changes in the predicted tidal height, which caused by wind speed, its direction and high or low barometric pressure,

- Nature and stability of the bottom- i.e., sand waves, siltation etc.
- Accuracy of Hydrographic data (Including CATZOC), a note as to reliability is often included on charts,
- Change of water density and the increase in draft due to freshwater allowance,
- The vessels size and handling characteristics and increase in draft due to heel,
- Wave response allowance and swells, which is the vertical displacement of the hull due to heave, roll and pitch movements (wave heights divided by 2 and deducted from water depth for UKC calculations),
- The reliability of draft observations and calculations, including estimates of hogging and sagging,
- Reduced depth over obstructions,
- **SQUAT**- When considering UKC this should always be inclusive of Squat. Ship's Squat is taken into consideration especially, in confined/Shallow waters, such as canals, rivers, port entry etc.

Open Sea Passage

The depth contours of more than twenty meters outside port limits/sea buoys is considered as open water. In open sea passage, the **minimum UKC must be at least 50% of the current maximum static draft.**

Coastal waters and within port limits

The depth contours of less than 20 meters shall be considered as coastal waters. In costal water and within port limits the **UKC will be at least 10% of the current maximum static draft. * If Port/Local Coast Guard/Pilot recommended UKC is more than the above then vessels must comply with Port/local Coast Guard/Pilot recommended UKC.**

UKC at Berth

The minimum UKC must be 1.5/100 to the breath of the vessel. But never less than 30 cm at any time (* Value should also be considering momentarily sinkage due to Listing moment.)

Anchorage

The minimal Under Keel Clearance: in calm weather and smooth seas condition, the UKC should be at least **20% of maximum vessel's draft in loaded condition.**

The master will immediately contact the operations department if the above requirements cannot be met.

Minimum Upper Clearance

The minimum overhead clearance while passing vertical obstructions (bridges over head cables) must be **at least 2 meters.**

7.4.1.(d) Rules of the Road

The Master shall assure himself that all Mates are thoroughly familiar with the Inland and International Regulations for the Prevention of Collision at Sea, and he should exercise strict supervision to see that the vessel is handled in accordance with these rules.

7.4.1.(e) Courses

The Master must always take the most direct safe track to his destination, taking into consideration such factors as weather, ocean currents, and tidal streams and to this end, will utilize such publications as are available to him. e.g., Ocean Passages of the World and sailing directions, pilot charts, etc.

Where possible, a wide berth should be given to all navigational hazards, such as rocks, reefs, wrecks, shallow water and any poorly charted areas.

When passing a vessel at sea on parallel courses and when sufficient sea room permits, a minimum safe distance of one mile must be maintained. Safe distances must always be maintained from headlands, capes and the coastline.

7.4.1.(f) Observations

All Deck Officers must take an active part in the navigation of the vessel and shall take stellar observations as the Master requires and voluntarily offer relevant information to the Master.

7.4.1.(g) Pilotage

Despite the duties and obligations of a Pilot, his presence onboard does not relieve the Master or Officer in charge of the watch from their responsibilities for the safety of the ship.

The Pilot only offering advises to the Master, the latter always being in command of his Vessel.

Prior to commencement of the Pilotage the Master should:

- Provide the Pilot with all relevant information concerning vessel's maneuverability and duly filled Pilot Card.
- Inform Pilot if there are any maneuvering peculiarities including critical engine revolutions.
- Pilot Passage Plan including maneuvers and exchange of information(s) regarding the complete transit is agreed between the Master, his officers, and the Pilot, prior to departure from Pilot Boarding area or Berth.
- Inform the OoW if there are any changes in the Passage Plan.
- See Checklists.

During the Pilotage, to always be aware of the situation, the Master should:

- Assure that each Officer is at his post, ready to carry out an instruction promptly.

- Assure that the officer of the Watch closely monitors the navigation, keeping a careful check of the vessel's position. Bearings must continue to be taken and plotted on the chart.
- Assure that the Pilot is given any assistance, which they may require and should always be given courteous consideration.
- Assure that OoW voluntarily offers relevant information to the Master and Pilot.

The Master should not hesitate to question the Pilot's action or overrule the Pilot's decision. If there is any indication of a problem, he should take immediate and appropriate action to safely navigate and maneuver the ship if he is in any doubt about the Pilot's capability.

THE MASTER AND THE OFFICER ON WATCH SHOULD NOT FORGET THAT THE BOARDING OF A PILOT IS NOT THE TIME TO RELAX BUT TO BECOME MOST VIGILANT (See Checklist)

7.4.1.(h) Complaints against Pilots

Complaints against pilots or pilotage services should be made in writing to the authority for the area concerned. Complaints should be brief, formal, and courteous and a copy of the report must be sent to ***RMS***.

7.4.1.(i) Bearings

The three- figure notation shall be used in recording all courses and bearings in the Deck Logbook. All bearings are to be entered as "True Bearings" and when reference is made to lights, buoys, beacons, etc., where necessary the latitude and longitude shall be given in addition to the bearings. All bearings taken by radar for verifying or for establishing the ship's position shall be entered in the appropriate records

7.4.1.(j) 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 the range of scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible and that small or poor echoes do not escape detection.

The Officer of the Watch should ensure that plotting or systematic analysis commences in ample time, remembering that sufficient time can be made available by reducing speed if necessary.

In clear weather, whenever possible, the Officer of the Watch should carry out radar plotting practice.

Radar Log

The Radar Log should be carefully compiled according to its instructions. It must be remembered that in the case of accidents the Radar Log may be a vital document, and it is important that all relevant details be accurately and promptly entered.

7.4.1.(k) Soundings

Whenever the ship's position is established or verified by sounding, the fact should be noted in the Deck Logbook. Soundings taken by echo-soundings devices should be frequently compared to the chart. Consider total changes in Rivers / Estuaries.

7.4.1.(l) Navigation Lights

At sea, navigation lights shall be visually signed daily in ample time for any defects to be remedied before sunset. Prior to arrival in pilotage waters, and before leaving harbor, a similar visual inspection should be made and particular attention paid to all portable lights, such as N.U.C., anchor signal and side lights. Navigation lights to be maintained "on" from SBE to FWE

7.4.1.(m) Reporting of Navigation Lights

If the alarm for the navigation lights sounds the Officer on duty should immediately change to the spare light and make an entry in the Deck Logbook. He should report the incident to the Master at the first opportunity. In addition, the Officer of the Watch shall personally satisfy himself regularly that they are showing efficiently and at full brilliance.

7.4.1.(n) Look-Out

Every ship shall always maintain a proper look-out by sight and hearing as well 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, stranding and other hazards to navigation. Additionally, the duties of the look-out shall include the sighting of ships or aircraft in distress, shipwrecked persons, wrecks and debris.

In applying these principles, the following shall be observed:

a) Both the OoW and the designated A.B are regarded as look–out. Whichever is keeping a look-out must be able to give full attention to that task and no duties shall be assigned or undertaken which would interfere with the keeping of a proper look-out.

b) The duties of the person on look-out and helmsman are separate, and the helmsman should not be considered the person on look-out while steering, and.

c) There may be circumstances in which the Officer of the Watch can safely be the sole lookout in daylight. However, this practice shall only be followed the situation has been carefully assessed on each occasion and it has been established without doubt that it is safe to do so. Full account shall be taken of all relevant factors including but not limited to the state of weather, conditions of visibility, traffic density, proximity of navigational hazards and if navigating in or near a traffic separation scheme.

Means of communication between OoW and assigned AB should be established.

The BNWAS must always be active during navigation at sea (***Refer 7.4.1. (w)***).

A lookout should always be posted during hours of darkness

7.4.1.(o) Maneuvering Equipment

All navigational maneuvering equipment, such as telemeter and steering gear, engine room telegraphs, telephone, whistles, etc., shall be thoroughly tested at least one hour before entering pilotage waters or leaving harbor. *At all times during maneuvering two steering motors shall be used.* Clocks shall also be synchronized. The closest cooperation between the Deck and Engine Department is required in this matter *and on completion of these tests, an appropriate entry shall be made in both Deck and Engine Logbooks.* USCG Regulations require specific entries as detailed in the Code of Federal Regulations.
See Checklist.

7.4.1.(p) Compass Errors

When the weather permits the error of both the magnetic and gyrocompasses should be ascertained at least once during every watch. A comparison shall be made between Standard Steering and Gyro Compasses at the commencement of each watch whenever an alteration of course is made and frequently during the watch. The results of compass observations shall be entered in the Compass Observation Record Book.

Magnetic Compasses

Although the Company's ships are fitted with Gyrocompasses, it is essential that the Magnetic compasses are maintained in an efficient condition.

Calibration & Compass Deviation Curves

It is ***RMS*** policy to have magnetic compasses calibrated by professional adjusters. This should normally take place after dry-docking. Should it not be possible to carry out the services on sailing from dry-docking port (because of departure during the dark hours or poor visibility, etc.), the compasses should be adjusted at the first port where conditions are suitable and service available. Should a Master consider magnetic compasses require adjustment at a

time other than following a dry-docking (*see below*), he should advise ***RMS*** stating his reasons.

The Deviation Curve is to be drawn up by the Master at least once each year, or when deviations recorded in the Compass Observation Record Book indicate they are far off the normal when compared with the previous curve. It should be noted that it is not abnormal for deviations to vary by up to two degrees over time from last "adjustment" of the compass depending on time elapsed, number of crossings between northern and southern hemispheres, or the condition of loading of the vessel. If deviations exceed 5 degrees from the last adjusted curve, a professional compass adjuster's service may be necessary

7.4.1.(q) Master's Night Order Book

The Master's Night Order Book shall contain specific instructions for the safe navigation of the ship during the hours of darkness. The orders shall be signed by each when taking over the watch.

7.4.1.(r) Bridge Watch

At sea, the Bridge is never to be left without a responsible Officer of the Watch being in charge. (See Checklist)

During hours of darkness there should always be an OoW and a lookout posted.

7.4.1.(s) Bell Record Book

Except for vessels fitted with an operating bell logger, the Deck Department and Engine Department will maintain a Bell Record Book, in which will be entered all Engine Orders transmitted to the engine room. The Officer may make entries in the Bell Book, which he must also sign. Incorrect entries in the Bell Book are not to be erased but must be rectified by drawing a line through the incorrect entry with the correct entry made alongside. Both the incorrect and corrected entries are to be initialized.

7.4.1.(t) Noon Position Chits

All sections on the noon position chit must be complete and all entries recorded in the Log Book.

7.4.1.(u) Man Overboard

The vessel is always required to search for a man overboard even though there would appear to be no chance of finding him. The Master must be convinced that the seaman cannot be found before the vessel returns to the original course. The Master is to advise ***RMS*** with a comprehensive report soonest after the search for the seaman has been abandoned. In the first

port, the Master is to mail to ***RMS*** a complete report with all the logbook extracts pertinent to the loss of the seaman.

7.4.1.(v) GMDSS Equipment

GMDSS is mandatory for all Deck Officers. However, the Master is to ensure that all Deck Officers are fully conversant with the operation of all equipment and the various procedures laid down for Safety Distress.

7.4.1.(w) Bridge Manning

Depending on prevailing factors at each time the Master must apply his sound judgment to ensure that all/additional help is in hand to safeguard the situation....

- Setting double watches whenever circumstances require
- Precise instruction
- Posting look-out
- Manning the wheel
- Precise instruction regarding reducing speed in the event of reduced visibility/Heavy Weather condition.

There may be situation/conditions where a second officer is required on the bridge to assist the master and the OOW.

Restricted visibility: Master to be accompanied by OOW, helmsman, and lookout
Restricted waters: *Master to be accompanied by an OOW, helmsman and eventually lookout.*
Entering leaving ports: Master to be accompanied by an OOW and helmsman. Normally the OOW is the Chief Officer. 2nd or 3rd Officer in charge of Pilot embarkation/disembarkation

7.4.1.(x) BNWAS

The BRIDGE NAVIGATION WATCH ALARM SYSTEM must always be set on from commencement to end of sea passage.
Only the Master should have the means to set the timer, activate or deactivate the system.
Where a key is provided on the panel switch, the switch should be set to AUTO and key tagged and retained in Master's safe custody. It should be handed over to relieving Masters.
The BNWAS system should be tested weekly and the test logged.
Each activation and deactivation of the system should be logged in the Bridge Log Book.

7.4.2 Navigation in Restricted Visibility

7.4.2.(a) General (See checklist Navigating in restricted visibility)

Masters are reminded that in conditions of restricted visibility the ship shall proceed in strict accordance with the International Regulations for preventing collisions at sea. All precautions shall be taken to preserve the safety of the ship. Speed must be reduced as the visibility decreases and always before approaching and entering fog banks.

When the Master is not on the Bridge, he should make it clear that the Officer of the Watch has full discretion in any doubtful situation, not merely to ring stand-by but to reduce speed and thereafter call the Master. All Officers, particularly inexperienced junior Officers, should be encouraged to call the Master at the first suggestion of real doubt. It should be clear to them that it is in the Master's own interest to be called, many times, rather than for him not to be called once, when it is too late.

7.4.2.(b) Plotting in Poor Visibility

Under all circumstances, the navigators must keep running plots of all vessels in the vicinity. In congested waters, Masters must not hesitate to double the navigation watches if deemed necessary to carry out efficient plotting procedures. One anti-collision Radar is to be running at all times from S.B.E (Standby Engines) to F.W.E. (Finished with Engines).

The use of radar, together with the consequential increase in information available to the navigators, in no way relieves the navigators, of their responsibility to adhere strictly to the International Rules for the Prevention of Collision at Sea.

In reduced visibility or suspected reduced visibility, the Master must consider the information available to him on radar before deciding on any appropriate action. In deciding on the appropriate action, however, the Master must use his discretion and judgment to the fullest, always bearing in mind the wording of the collision regulations. It should be borne in mind that icebergs, wooden ships, tugs and barges may not show up on radar screens as readily as do most types of ships, so that a clear screen does not necessarily mean a clear seaway.

7.4.2.(c) Navigation in:

- Confined waters
- Sudden loss of maneuverability
- Reduced visibility
- Heavy weather condition
- Winter/cold weather precautions
- Navigation under pilotage
- Navigation in costal water
- Navigation in ice

Refer to Standing Instructions and Checklist.

7.4.3 Sextants

Each vessel in the fleet is provided with sextants. The Second Officer is responsible for its safekeeping and maintenance. When repairs and adjustment are required, the instrument is to be landed for prompt attention by a marine optician in order that it may be in good working order at all times.

Masters should encourage Mates to practice the art of Solar and Stellar navigation.

7.4.4 Nautical Publications

Our Vessels are continuously updated with all relevant nautical publications. The company has established a source in Europe and the USA from where latest listings of all publications

are received both at ***RMS*** and on board the ship. The routine involved requires close co-ordination between ***RMS*****,** the Master and the Publication Agency

7.4.5 Nautical Agencies

For our Vessels calling worldwide ports with the exception of the USA & Japan, the agency contracted for the purpose is Bogerd Martin, Antwerp.

For Vessels in Far East Trade, shall use Cornes & Co., Kobe, Japan.
For our Vessels calling ports in the USA, the company contracted for the purpose is HORIZON NAUTICAL, L.A. USA.

For ENC's Bogerd Martin.

7.4.6 Procedures

The scope of publications and charts has been established between the Master and Officer. The Master has been instructed to coordinate directly with the nautical agent covering his area. Any extraordinary requirement needs approval from the office/QSMS Department. However, the Master must apply sound judgment when ordering any publications.

7.4.7 Change in Trade / New Port

In case there is a call for a change in trade area or the inclusion of a new port, the Master is to specify, directly to the nautical publications department on the new requirement.

7.4.8 Updates and New Publications

The publication company in turn is to forward directly to the Vessel on a monthly basis the list of all new (and new edition) publications, both admiralty and those related to the International Maritime Organization's requirements via e-mail. The Master is to determine the actual requirement for his Vessel and revert.

7.4.9 Anchoring and Anchorages

7.4.9.(a) Anchoring and Anchorages

When entering harbors or approaching an anchorage, the master shall ensure that both anchors are ready for letting go and walked back to avoid jamming in the hawse pipe.

Due attention to be paid to the depth, where there are strong currents or other forces to contend. In deep waters, the anchor should be lowered near to the bottom before letting go. Care should be taken to see that the ship has no way on her at the time.

See checklist

7.4.9.(b) Loss of Anchor or Cable

If an anchor is lost, the notification, in accordance with the reporting system laid down here in, must state clearly, the circumstances of the loss, the reference number of the lost anchor and the length of cable lost. To avoid loss of an anchor, all Masters/Chief Offices are instructed to make sure, before sailing from a port, that the anchors are properly housed and that the chain is not twisted and the main stopper is in proper working condition. For additional security, it is good seamanship to have a wire strop with a turnbuckle fitted to take care of possible slack between the main stopper and anchor itself, when in the housed position.

7.4.9.(c) Anchor Watches

Anchor Watches must maintain on the Bridge when the vessel is at anchor. In all circumstances, the Officer of the Watch should:

- Determine and plot the ship's position on the appropriate chart as soon as practical and at sufficiently frequent intervals check when circumstances permit, by taking bearings of fixed navigational marks or readily identifiable shore objects, whether the ship is remaining look-out is maintained.
- Ensure that an efficient look-out is maintained, especially for illicit boarding.
- Ensure that inspection rounds of the vessel are made periodically by rating on watch.
- Observe meteorological and tidal conditions and the state of the sea.
- Notify the Master and undertake all necessary measures if the vessel drags the anchor.
- Observe closely the position and proximity of other vessels at anchor, noting always the possibility of another vessel dragging her anchor on to own vessel.
- Ensure that the state of readiness of the main engines and other machinery is in accordance with the Master's instructions.
- If visibility deteriorates notify the Master and comply with the applicable regulations for preventing collisions at sea.
- Ensure that the vessel exhibits the appropriate lights and shapes and that appropriate sound signals are made at all times.
- Take measures to protect the environment from pollution by the ship and comply with the applicable pollution by the ship and comply with the applicable pollution regulations.

See Checklist

7.4.10 Pilot Ladders and Mechanical Hoists

Pilot ladders, side doors, deck boarding and transfer arrangements are to be maintained in accordance with regulations laid down in SOLAS 1974 & its protocol of 1988 as amended.

Ref: SOLAS Chapter V Regulation 23 and **IMO Resolution A.1045(27)**

The periodical inspection and maintenance of the pilot ladder & boarding arrangement must be conducted in accordance with above IMO resolution and PMS and recorded.

"Required Boarding Arrangement for Pilot" Chart in accordance with IMO requirements must be posted on the Bridge.

7.4.11 Employment

7.4.11.(a) Voyage Instructions

Vessels will normally receive their voyage instructions (cargo/bunker requirements) from OPNS/TFA San Jose and Master should refer to and comply with OPNS /TFA Ship's Instruction Manual. In the event your vessel is chartered to a third party, then full instructions will be given by OPNS/TFA and by the time or voyage charters. In case of any doubt or discrepancy regarding voyage and/or cargo instructions, Masters should contact the Operations Director.

7.4.11.(b) Responsibility for Cargo

The vessel is responsible for cargo from the moment it passes the ship's rail at the loading port to the time of leaving the ship's rail in the discharging port. It is, therefore, of utmost importance that all necessary precautions are taken to see that the cargo is delivered at the discharging ports in the same quantity and quality as when received on board. (Refer to separate instructions issued by service operators.

7.4.11.(c) Loading/Discharging

The stowage, loading and discharging of cargo, as well as the ballasting of the vessel is to be carried out under the supervision of the Chief Officer, who is directly responsible to the Master. In carrying out this responsibility, he shall pay particular attention to the manner in which the Second Officer and Third Officer perform their duties in this connection. He shall enter in the Deck Order Book the necessary instructions pertinent to the handling of cargo to enable his subordinates, stevedores and others concerned, to understand clearly the manner in which cargo is to be handled. He is to ensure that all safety precautions are taken, including precautions against loss or damage

7.4.11.(d) Cargo Securing

Cargo Securing to be strictly followed in accordance to Vessel Cargo Securing Manual.

Cargo lashings must be checked for security at least once, where necessary twice, each day and recorded in the Deck Log Book, along with any observations made during the checks.

Due regard is to be given to safety of personnel keeping in mind the weather conditions and vessel movement when sending crew members on deck to check lashings.

7.4.11.(e) Stability and Trim

Cargo, bunkers, fresh water and stores will be so loaded that the vessel maintains a safe margin of positive stability and suitable trim throughout the voyage.

Vessels equipped with loadicators/Computerized Stability Programs must make full use of these instruments at all times, whether loading/transferring or discharging. Should an error be found in the instrumentation/programs, ***RMS*** is to be advised immediately.

7.4.11.(f) Cargo Record Book

The Chief Mate shall keep a written record of all cargoes loaded, discharged and lightened, indicating the amount of cargo carried in each compartment, the amount discharged, the condition of bunker and freshwater tanks, as well as draft and water density figures.

7.4.11.(g) Sounding Record Book

All non-cargo carrying spaces and bilges to be sounded on a daily basis and findings recorded in a Daily Sounding Book. Should a vessel be in ballast condition, the cargo compartments should also be checked on a daily basis in addition to the non-cargo carrying spaces and a proper notation entered daily in the Deck Log Book/Engine Log Book

7.5 Engineering Operations and Maintenance

7.5.1 General Reporting

To ensure that the Company can provide the vessel with the necessary services and support, it is essential that the Chief Engineer communicates regularly with the DVM and provides him with accurate information regarding both general and urgent matters. Reports are to be submitted as per 11.9.2 and photographs of problems (and improvements) are encouraged.

7.5.2 Watchkeeping and UMS Operation

The Chief Engineer is responsible for allocating watchkeeping duties for his staff as he is to ensure that the persons assigned to any task or duty are competent and dependable.

The Duty Engineer is responsible for the satisfactory and safe operation of all machinery and associated procedures during his duty period.

Emergencies: In the event of any emergency, the Duty Engineer is to advise the Chief Engineer without delay.

Main Engine RPM: Should a reduction in main engine RPM become necessary due to a problem in the engine room, the Duty Engineer must first advise the Bridge, and then advise the Chief Engineer at the first opportunity after taking the necessary action. If an unscheduled vessel speed change is requested by Bridge, the Duty Engineer is to respond immediately. He is also to inform the Chief Engineer.

Handing-Over Duty: At the end of a duty period, the Duty Engineer is to fully inform his relief regarding the status of the engine room, any particular situations and any incidents that have occurred during the past duty period. He must also ensure that any special instructions from the Chief Engineer are passed on and understood by his relief.

UMS Vessels: The Duty Engineer will make a thorough inspection of all machinery spaces, in accordance with Chief Engineer's standing instructions before switching to UMS. At 2200, and again at 0600, irrespective of whether there is an alarm or not, the D/E must take rounds of the ER (Key Procedure Standing Instruction #10). The round at these hours also constitutes a Fire Patrol (Safety Manual 2.17) **and must be logged in the Engine & Deck Log Books**

Non-UMS Vessels: On these vessels, and on U.M.S vessels during manned engine room periods, the Duty Engineer is not to leave the engine room during his watch on any excuse whatsoever unless relieved by another engineer who is authorized to take charge of a watch

7.5.3 Succession to Authority

In the case or absence or disability of the Chief Engineer his duties and authority shall normally rest upon the Assistant Engineers on board in the following order

First Assistant Engineer
Second Assistant Engineer
Third Assistant Engineer

7.5.4 Maneuvering Duties

During
- entry or departure from port, and
- other close maneuvering situations, or
- when poor visibility, rough weather and other emergent situations require the ECR to be manned,

the Chief Engineer must be on station in the ECR/Engine Room along with the duty or other senior engineer.
The Chief Engineer is to ensure that adequate rating assistance is available in these situations.

7.5.5 Port Duties

During port stays, there must always be a designated duty engineer who must remain on board the vessel for his complete duty period. If the vessel engine room is operated on a U.M.S. basis in port, the duty engineer must carry out inspections as per **7.5.2**. If there is work being carried out in the engine room by shore service personnel, or if cargo operations require the starting and stopping of related machinery. The Chief Engineer is to ensure that the engineer watches are arranged to ensure coverage with due regard to rest period.

7.5.6 Work in Port

The Chief Engineer must seek permission from the Master for immobilization of the Engine

7.5.7 Engine Bell Book

The Engine Bell Book shall contain an accurate record of engine telegraph orders from the Bridge on vessels not equipped with Order Printers and should be retained as a permanent record on board. The Bell Book shall also be used to record Fuel flowmeters and engine counters at start and end of sea passages.

On vessels having an automatic printout for engine movements, the printout of the maneuvering period must be maintained on board. All records are to be maintained on board for at least 3 years.

7.5.8 Engine Log Book

The Chief Engineer shall be responsible for the proper preparation and maintenance of the Engine Log Book. The Log shall be signed by the Engineer on watch and daily by the Chief Engineer. The Log Book provides for the entry of all pertinent data relating to machinery operation and entries shall be accurate and complete in all respects. Vessels, which have an automatic Log Alarm printout system, must have the Machinery Log printed out at a fixed time daily. The log must be configured to include all-important parameters in the engine room. A copy of the daily Log along with the Alarm Log must be systematically filed for future reference. The Log Book shall also contain important entries, like bunkering, tank levels/soundings, work done, etc. See also chapter 11.10.

7.5.9 Daily Work Book

The First Assistant Engineer, under the direction of the Chief Engineer, shall maintain a Daily Work Book, listing in detail, all maintenance accomplished on vessel machinery and equipment. Only factual entries are to be made with brief descriptions in engineering terms. DO NOT use the description, for example. “Overhauled Feed Pump”, rather enter in the Book:

- Main Feed Pump opened. Bearing, clearances as follows:
- Shaft, impeller, wear rings, packing or seals renewed or listed work actually carried out.
- If upon opening the unit everything is found in perfect order, then it must be so stated, “however, bearing and thrust clearances and unit alignment tolerances must be given”.

The Chief Engineer must review and sign the Daily Work Book kept by First Assistant Engineer each Monday to certify that previous week entries are correct and accurate.

The Reefer Engineer and the Electrician must also maintain Daily Work Books and make them available to the Chief Engineer each week. The Reefer Engineer is also responsible for the maintenance of the Reefer Log for the cargo holds and containers.

7.5.10 Bunkering

The loading transfer and if required discharge of fuel is a critical key procedure, which could be the most likely time for a pollution incident to occur. The Chief Engineer is fully responsible for such procedures and is to ensure that precise orders are in force. He is to ensure that any tank to receive fuel has sufficient safe capacity to do so safely and at no time is a fuel tank to be filled beyond 90% capacity. Careful calculation must be made when ordering bunkers to ensure that the vessel can safely receive all of the fuel. The procedures and checks laid down in the checklist must be followed without exception and the Chief Engineer must be on board the vessel and on station during bunkering operations. **Under no circumstances** must the bunkering operation be hurried beyond what the Chief Engineer considers safe and if any doubt arises regarding the status of the tank levels the bunkering should be stopped **immediately** and only resumed once the situation is fully appraised.

Bunkering plan to be made for each bunkering. This plan shall contain ROB before bunkering including sounding, tanks to be bunkered, sequences, sounding when bunkering to be stopped, ROB after bunkering, and Emergency procedures in case of overflow.

See appropriate Checklist.

A Bunker Tank Statement on the prescribed form is to be sent as an email attachment to Vessel Operations (including Vessel Mailbox) after each bunkering, showing volume and quantity received. A legible scanned copy of the BDR for each grade received is also required to be sent in the same manner.

7.5.11 Lubricating Oils

The same amount of care must be taken during the bunkering of lubricating oils as in 7.5.10.

Storage tanks must be clearly labeled and contain only the designated type of oil.

Ship's staff is to be instructed by the Chief Engineer in the uses of the various grades of oil on board and must be aware of the dangers of miss-application.

Engineer Officers must be aware of the oil supplier's current lubrication chart detailing the uses for each grade of oil supplied. This is to be displayed in a prominent position in the Engine Room.

7.5.11.(a) Sample Testing

L.O. samples are to be sent to the lubricant supplier as per the following schedule. The below given Schedule is for the KSEC's only. The Polish Class, HMD's, Italians and the HDW's kindly refer the Schedule in Appendix 9.

SUBJECT	***FREQUENCY PER YEAR***
Main Engine	4
Camshaft M.E.	4
Each Aux. Eng.	4
Each Deck Crane	4
Stern Tube	4
Reefer Compressors	4
Deck Machinery	2
Bow Thruster	2

The Chief Engineer is responsible to implement recommendations given in the Lubricating oil Analysis report

However, if there is a suspected or known problem in any system, samples are to be landed as frequently as necessary until the situation returns to normal. Also, if any report shows an abnormal condition for no apparent reason, that system may be sampled again to check that the samples were representative. DVM is to be informed and updated at all times.
Stern tube L.O. should be tested weekly and results entered in the logbook. If the vessel has a Tailshaft Condition Monitoring Survey Agreement (TMON) with the relevant Class society, then the TMON report must be filled in as required.
Annual testing of the Stern Tube L.O. by an independent, approved, laboratory may also be required by some Classifications Societies.

7.5.11.(b) Purification of Lubricating Oils

When a purifier is used on the sump of a running engine, there is always the danger that a failure of the purifier can result in the engine oil being lost and severe damage occurring to the engine. It is essential therefore that all safety alarms and-shutdowns on the engines are always in good working order and regularly tested as per the PMS.
Checks of the viscosity and water content of all engine sumps are to be carried out weekly and reported as per 11.5.

Main Engine
The ME L.O. purifier should be operated continuously at sea and as necessary when in port.
A/E with Dedicated Purifier
The A/E sump is to be purified continuously if the engine is provided with a dedicated L.O. purifier.
A/E without dedicated purifier
Where one purifier services several engines, it should not be used on a running engine wherever possible. If this cannot be avoided, the engine/purifier should not be left unattended. It is recommended that the purifier be changed from engine to engine after around 60 hours

7.5.12 Chemicals

It is the responsibility of the Department Heads to ensure that each crewmember in the respective department has been instructed in the proper handling of any chemicals they may use. Crewmembers are also to be instructed of correct procedures in the event of accidental spillage.
A special Chemical Locker is to be maintained on board. This should have a Chemical Record Book with the relevant Marine Safety Data Sheets and continuous update on the inventories.

7.5.12.(a) Handling Precaution

To ensure the safe handling and stowage of chemicals carried on board our vessels, the following procedures are to be adapted:

- All chemicals are to be kept in their original containers.
- Do not stow chemicals adjacent to heat source
- Chemicals are to be stowed in areas where they are protected from the weather.
- Do not stow incompatible chemicals together or adjacent to one another.
- For compatibility, refer to the Material Safety Data Sheet (MSDS)
- Prior to handling any chemical, the user is to be familiar with any precautions required. These may be marked on the container itself or identified in the MSDS.
- Always use appropriate personal protective equipment when handling chemicals.
- If necessary, to transfer chemicals to another container for convenience of use, ensure the container is suitable to receive the chemical. Only transfer sufficient chemicals for the task at hand.
- Never use chemicals which are stored in unmarked containers
- Do not mix incompatible chemicals - two seemingly harmless chemicals can often combine to produce toxic substances.
- Only use the chemicals for the task, which they are supplied for
- Chemicals must be handled in a well-ventilated space. Under no circumstances should chemicals be handled in or near the vicinity of welding, flame cutting or similar hot work.
- The chemical locker should be secured with a padlock or lock as appropriate.
- A list is to be posted in the individual lockers where consumption and data are to be entered, when chemicals are removed from the locker.
- The person in charge of adding chemicals to the different consumers is to sign the special instruction sheet posted in the chemical locker. This instruction is to inform the person in charge to read the safety data sheet and sign it when understood.

<u>(A copy of this section to be pasted on the door of the Chemical Handling Room)</u>

7.5.12.(b) Indications

Crewmembers exhibiting the following symptoms should be questioned on any chemicals they may have recently handled.

1. Breathing difficulties, breathing faster or deeper, soreness and lump in throat.
2. Dizziness, drowsiness, disorientation, difficulty of breathing.
3. Burning sensation in eyes or in skin, redness, and soreness.
4. Weakness, fatigue
5. Chills, upset stomach.
6. Odors, strange taste in mouth.

For specific treatment refer to the MSDS or instructions marked on the container.

7.6 Drydock

A drydock is an unnatural condition for a ship and must be regarded as such for the duration of its stay. Alertness must be maintained at all times and a deck and engine watch is to be kept the full 24 hrs. The Checklist must be strictly used.

7.6.1.(a) Fire Main

Shoreside S.W. supply for the vessels fire main is to be connected as soon as possible and pressure maintained at all time.

7.6.1.(b) Emergency Services

On arrival at the shipyard, a shore telephone must be connected and a list of all emergency numbers (Fire brigade, Ambulance, dockmaster etc.) is to be obtained from the yard manager and placed in a prominent position close by. All officers are to be made aware of its existence and location. (See Checklist)

7.6.1.(c) CO2 System

The fixed CO2 fire-fighting installation is to be immobilized once the vessel enters the shipyard so as to prevent accidental release. This is normally effected by disconnecting the pilot cylinder in the CO2 room.

7.6.1.(d) Shore Power

If the vessel uses shore power supply, the voltage and frequency must be monitored regularly and care taken when connecting heavy consumers in order to avoid black outs which could result in accidents, particularly to shore workers unfamiliar with the layout of the vessel

7.6.1.(e) Fire Watch

When hot work is being carried out, ship's staff must set a Roving Fire watch, even if a shore fire watch is posted. Attention must be paid to areas adjacent to those where welding or burning/cutting is being carried out, as these are usually the areas where fires occur.

7.6.1.(f) Hot work

Hot work should not be attempted anywhere on the vessel without prior permission from the shipyard and a gas free certificate from the shipyard's chemist.

7.6.1.(g) Daily Meetings

The Master and Chief Engineer are to keep themselves fully informed regarding the status of the vessel, jobs in hand and planned, and should hold a daily meeting with the Shipyard Manager, DVM, Chief Officer, 1st Assistant and Electrician in order to discuss the daily schedule and work progress.

7.6.1.(h) Transfer of Fuel or Water

No transfer of fuel or water is to be carried out without permission from the Master and all such operations are to be carefully recorded in order to ensure that the vessel is re-floated in as near the same condition as on entering the dock. (See Checklist).

7.6.1.(i) Bottom Plugs

Bottom plugs are only to be removed in the presence of the Chief Officer and he is fully responsible for ensuring that all are replaced correctly before the vessel is refloated.

7.6.1.(j) Cranes

No cranes are to be moved without permission from the Master, who should request authorization from the dockmaster. This is especially critical in floating docks where dock stability is a major concern. (See Checklist).

7.6.1.(k) Lifeboats

Under no circumstances are lifeboats or davits to be tested while the vessel is on the blocks. The release gear for freefall lifeboats is to be secured and locked, if possible.

7.6.1.(l) Pollution

Utmost care is to be taken to avoid any contamination of the drydock when bottom plugs, side valves or pipes are opened. The discharge valve from the oily Water Separator must be closed prior to entering the dock in order to prevent any possibility of siphoning. The header tanks for the stern tube and side thrusters should also be valved off.

7.6.1.(m) Stern Seal

If the stern seal is to be opened, the stern tube header tank must be secured (if possible) and the oil drained internally. The Chief Engineer is responsible for ensuring that this is carried out and that the tube is refilled with the correct amount and type of oil prior floating.

7.6.1.(n) Refloating (See Checklist)

Prior to the dock being flooded, the underwater area of the vessel must be inspected by the Master and Chief Engineer, along with the Chief Officer. All grids are to be confirmed closed and locked, all plugs refitted and no leaks showing, all anodes (where fitted) should be cleaned of paint and any protection, as should cathodic protection cells, echo sounder transducers and any other similar devices. The Stern seal should be checked for any leakage and the rope guard must be confirmed in position. Any rudder inspection plates and the rudder plug must be securely re-fitted. All chutes and plugs must be removed from hull discharges.

The Master is to ensure that the vessel stability has been checked and all major items, particularly cranes, hatch pontoons and any containers are in the correct position. The dock master is to be advised of any special requirements, such as stopping to fill ballast tanks for inspection of piping & valves. The Chief Engineer is to be advised of the program and it should be determined at what point pumps and generators may be started.

Flooding of the dock is only to be commenced on instruction from the Master.

Throughout the flooding operation, all engine room pipes and valves; particularly where work has been carried out must be continuously monitored for leaks. Flooding is to be stopped if considered serious. Regular monitoring of all ballast tanks is also to be carried out and soundings recorded.

Before re-starting machinery, a thorough check of all lines and valves must be carried out and systems readied for starting, particularly with respect to the auxiliary engines.

*7.7 **Pollution Prevention and the Carriage of Dangerous Goods***

Reefership Marine Services, LLC, is fully committed in preserving the Marine Environment and prohibits the pollution of the Seas by any vessel within the fleet.

Analysis and Identification of Pollution Sources:

The IMO defines "marine pollution" as:

"The introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) which results, or is likely to result, in such harmful effects as harm to marine life, a hazard to human health, a hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities".

Later MARPOL Conventions defined pollutants as "oil and other harmful substances". This wider definition reflects the great concern about marine pollution from substances other than oil and includes the emission into the atmosphere of exhaust fumes, certain refrigerants and indicates that halons are more harmful to the ozone than CFC's.

The IMO currently divides marine pollution from vessels into eight origins:

1. Operational discharge from oil tankers during tank cleaning.
2. Bilge discharges from all vessels
3. Spills from marine accident i.e. collision, grounding, explosion, etc.
4. Spills during loading, discharging, transferring and bunkering.
5. Deliberate discharge of refuse, sewage, garbage, hold sweepings, etc.
6. Emissions of exhaust fumes, CFC gases and cargo vapors.
7. Discharge of ballast water.
8. Anti-fouling paints.

Ship's Masters must recognize that points 2, 3, 4,5,6,7 and 8 are the most possible causes of any pollution from within the present fleet and ensure that onboard training and high standards of maintenance are necessary to reduce pollution incidents.

The sewage treatment plant must be maintained in operation and in good working order at all times.

It is expected that a professional and responsible attitude be maintained towards Pollution Prevention systems that will prevent both pollution of the environmental and criminal proceedings against ship's crew, the vessel and/or the company.

This equipment MUST be in working condition at all times and be used in the way it is designed to be.
Sewage Systems must be in operation at all times and not just used when the vessel is in restricted areas. Inactivity is the primary cause of problems with this equipment. Assistance should be sought from this office as and when necessary.

This management is committed to ensuring that our crews have equipment and assistance necessary to operate their vessels in compliance with environmental regulations at all times. We will accept the cost of landing residues ashore as and when required, of course anticipating that the vessel's crews will keep these quantities to a minimum by good on-board management and ensuring the minimum water content.

7.7.1 Oil Spill Prevention

The Master's basic aim must be to prevent oil spillage through determined work both with the human and technical aspects of safe ship operation.

The most likely causes of oil spills on Company vessels are:

- During bunkering and internal oil transfers
- Bilge discharge (faulty monitoring equipment)
- Marine accidents

The main points to be considered are:

- Use of the Company's own bunkering and oil transfer procedures.
- Personnel alertness, system knowledge and ability to repair faulty equipment.
- Crew confidence and ability in dealing with potentially dangerous situations
- Thoroughly prepared contingency plans and training as per S.O.P.E.P.
- Proper technical back-up from the Company.

The Master shall, in consultation with the Chief Engineer, designate the requisite teams for Pollution Prevention exercises. Minimum one SOPEP drill per month. He shall ensure that correct records are maintained of all such exercises in accordance with Flag State and Port State requirements.

RMS has appointed U.S based company as Qualified Individual and Spill Management for the entire U.S.A, including contingency planning and agent for services to Non-Tank Vessel entering waters of the state of California.

See chapter 0.5.

7.7.2 Waste Management

Under no circumstances does ***RMS*** accept discharge into the sea of sewage, garbage or hold sweepings maintaining that such discharges can be major contributing factors in the pollution of coastal waters and beaches.

RMS emphasizes its agreement with the principles of MARPOL 73/78 (1997 edition) annexes IV (sewage) and V (garbage), as amended. ***RMS*** **Garbage Management Plan** is to be implemented as provided on each vessel.

The system remains under the overall supervision of the Master who will, in conjunction with the rest of the ship's staff, constantly review procedures to control the volume of garbage for disposal.

See Garbage Management Plan/Manual.

7.7.2.(a) Garbage

Is defined and includes all types of victual, domestic and operational waste, generated during the normal operation of the vessel.

Total prohibition of disposal of all non-biodegradable plastic substances including synthetic ropes, synthetic fishing nets and plastic garbage bags is required. MARPOL 73/78 Annex V is amended time to time to discharge of other categorized waste.

The RMS ***Garbage Management Plan/Manual*** is to be referred for updates and compliance.

The Master will ensure that the Cook/Steward is aware of the requirements to sort domestic waste to facilitate efficient disposal in this manner and in co-operation with the Chief Officer and First Assistant Engineer confirm that the Deck and Engine room operational waste, including sludge, is effectively dealt with. The location for storing garbage-awaiting disposal is to be advised by the Chief Officer.

Shore reception facilities for garbage, including sludge, shall be employed whenever the situation warrants it. On these occasions it is important that the Master is aware of these requirements well in advance in order to co-ordinate with Local Agents, contractors, etc.

Placard to be displayed to notify the crew and passengers of the ship's disposal requirements.

When requisitioning stores and provisions, suppliers should be requested to minimize packing materials in order to reduce the amount of garbage generated on own vessels.

Vessel management should minimize the taking onboard of potential garbage and onboard generation of garbage.

An entry is to be made in the OIL RECORD BOOK by the Chief Engineer indicating the means of disposal of oil and oily waste. Similarly, a GARBAGE RECORD BOOK is to be maintained by the Chief Officer showing the disposal of garbage, including quantities, locations etc, and shall be kept available for Port State, USCG and inspections by other authorities.

7.7.2.(b) Sewage

Is defined as drainage and other wastes from:

- Any form of toilets, urinals or WC scuppers
- Medical premises (dispensary, hospital, etc.) via wash basins, baths or scuppers.
- Other sources when mixed with those defined above.

All Company vessels are fitted with an approved sewage treatment plant to meet operational requirements based on standards and test methods approved by the IMO/USCG. By this means the continuous discharge of treated sewage is permitted, subject to local regulations.

7.7.2.(c) Special Areas

See Environmental Manuals.

7.7.2.(d) Polluted Harbors

It is possible that the ship may be accused of pollution when berthing in an already polluted harbor space. Should oil be observed on the surface of a harbor when entering and, in order to protect the vessel from such unjust accusations, the Master should make an official entry in the log book notify the harbor authorities immediately and, where possible, obtain a sample of the oil. A copy of the log extract and letter of complaint, together with any reply, should be sent to ***RMS*** as soon as possible.

7.7.2.(e) Pollution Allegations by Port Authorities

Sometimes a vessel is accused of pollution after sailing from a port where the incident is alleged to have taken place. It is possible that the question of pollution is discussed with local authorities and apparent agreement reached by all parties concerned that the vessel is innocent. However, it is also possible that they consider the vessel innocent and adopt a contrary attitude as soon as the vessel has departed.

It is difficult to defend such claims, and should owners be forced to pay it is difficult to recover these costs from Insurance without evidence to support our assertion that the ship was innocent.

In the event that a question of pollution is raised by the port authorities, Masters are requested to obtain from them a written statement that the vessel is blameless. Masters are also required to advise our Agents and ***RMS*** immediately of the facts.

Masters are to forward as soon as possible an extract of log-book together with copy of any statements made by shore officials in the event of the above situation.

It is also of the utmost importance that the Master is fully informed at all times by the Chief Officer whenever any inquiry or complaint is made by shore officials or terminal employees.

7.7.2.(f) Oil Records Books

International and Flag State Maritime Laws require that a continuous record be maintained of all movements of oil, oil/water mixtures and machinery space bilges.

These record books, with instructions, are normally provided by the Maritime authority of the flag each vessel sails under.

7.7.3 Air Pollution Prevention

Modern research indicates a connection between the emission of exhaust fumes containing a high percentage of carbon dioxide, and a global "greenhouse effect". Likewise a link has been established between the depletion of the ozone layer and CFC gases.

To minimize carbon dioxide emission with existing technology will be difficult but the company shall keep abreast of the current development and testing of exhaust cleaning systems and evaluate the need for such new technology to be fitted on new buildings.

With regard to CFC gases, most of the Company's vessels use these for cargo refrigeration and consequently are under an obligation to prevent their escape into the atmosphere.

Practical shipboard measures which fall under the responsibility of the Chief Engineer Officer must take into account the need for:

- Routines for frequent leak detection
- Effective evacuation of system prior to repairs

- Proper pressure testing of systems after repairs
- Establishing and maintaining a CFC account.

7.7.4 Ballast Water Control

California Ballast Water Program to be strictly followed.
The IMO's Marine Environment Protection Committee has adopted resolution MEPC 50(31): "International Guidelines for preventing the introduction of unwanted aquatic organisms and pathogens from Ship's Ballast water and Sediment discharges"
As it states in its title, the aim of these guidelines is to assist National Administrations and Port State Authorities to prevent pollution in the form of unwanted organisms in ballast water

NO BALLAST WATER TO BE DISCHARGED IN US PORTS.
Vessels having USCG approved Ballast Water Management System may do so. All vessels to refer to class approved BWMP applicable to their Specific vessel.

See Ballast Water Management Manual.

7.7.5 IMDG Coded Goods

All ***RMS*** vessels carrying dangerous goods must obtain the "Document of Compliance" for the carriage of dangerous goods. All vessels must carry the latest IMDG Codes (Blue Books) including the supplements for Emergency Medical Guides and Spill Containment procedures. All Dangerous Goods loaded on board are first approved/ authorized by ***RMS*** and a "Dangerous Cargo Manifest" is to be made and planned for inspections by all Port Agencies. Proper marking and segregation is to be made as per specifications under "Stowage".

Explosives and Nuclear cargoes are to be refused and ***RMS*** has to be informed of this.

7.7.6 Anti-Fouling Paints

IMO resolution for Tributyltin Ban from 2003 and total removal from 2008.
The company shall keep abreast of developments in anti-fouling paints with a view to eliminate the introduction of tributylin and other detrimental chemical compounds into the marine environment. The Master and his staff will, on their part, make every effort to reduce pollution caused by painting, paint removal, cleaning, sand blasting or waste disposal operations.

7.7.7 Noise

The Company appreciates the need for lower ambient noise levels to comply with IMO and National Administration regulations as well as to reduce discomfort and disturbance to marine personnel and local inhabitants. The Master and his staff may discuss possibilities for reduction of noise levels with their DVM at any stage in the design and manufacture of new vessels, whenever installing equipment on existing vessels or at any other time they feel noise levels, especially in living areas, are unreasonable. The Master and his department head must ensure that when it is necessary to work in areas of high noise levels ear protection is worn at all times.

7.7.8 EU MRV and IMO Fuel consumption data collection system

The EU MRV (Monitoring, Reporting, Verification) regulation (EU2015/757 & 2016/1927) entered into force on 1 July 2015, and it requires ship owners and operators to annually monitor, report and verify CO2 emissions for vessels larger than 5,000 gross tonnage (GT) calling at any EU and EFTA (Norway and Iceland) port.

Data collection takes place on a per voyage basis and starts 1 January 2018.

Applicable to vessels calling European ports.

Please refer to the EU MRV Monitoring Plan, as applicable for this vessel. The MEPC (Marine Environment Protection Committee) of the IMO announced that they are adopting a mandatory fuel consumption data collection system for the shipping industry.

This new regulation (MEPC 70) will apply for all ships above 5,000 gross tonnage and will start from 2019.

All ships will have to submit the data to the IMO database. The s-insight software is used by ships to report the consumptions. Applicable to all vessels.

The company will be using StromGeo and its s-insight platform for collection, validation, and calculation of various EU MRV relevant Data and generating EU MRV voyages. For which

Regular Check of the Adequacy of the Monitoring Plan: The EU MP is to be checked by the Masters of the vessels and by office personnel on a regular basis about any changes, such as retrofits, new sources of emissions, new fuel types or of company, to confirm that the MP is still accurate and valid. The verifiers will be notified if the MP is modified.

Procedures for data flow activities: Internal cross checks and validations must be carried out by vessel and the office using s-insight platform and data on board the vessel.

Corrections and corrective actions: All data like distance travelled, time spent at sea, etc. are to be validated and any flags raised in the s-insight platform is to be followed up by the office, vessel and StromGeo reps.

7.7.9 IMO 2020- Ship Implementation Plan

The MEPC, agreed that Administrations should encourage ships flying their flag to develop implementation plans, outlining how the ship may prepare in order to comply with the required Sulphur content limit of 0.50% by 01 January 2020.The BMA Bulletin 183 provides guidance on this and information related to the entry into force of the MARPOL Annex VI prohibition on carriage for use of Non-compliant fuel on ships without an approved alternative means of compliance on 01 March 2020.

The Vessel Management has utilized the IMO Circular MEPC.1/Circ.878 to prepare ship specific Ship Implementation Plan (SIP). Crew are guided to the vessel/trade specific Ship Implementation Plan when receiving, processing, consuming fuel bunkered in compliance with IMO 2020 low sulfur regulations.

7.7.10 Inventory of Hazardous Material (IHM)

In May 2009 the Ship Recycling Convention was formally adopted in the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships. The purpose of the Convention is to prevent, reduce, minimize the adverse effects on human health and the environment caused by ship recycling, and to enhance a vessel's safety, protection of human health and the environment throughout a vessel's operating life. IMO has been focusing its efforts in developing a set of guidelines for the development of the inventory of hazardous materials, development of a ship recycling plan, authorization of ship recycling facilities, and safe and environmentally sound ship recycling etc.

The EU Regulation on Ship Recycling (EU Regulation No 1257/2013) which entered into force on 30 December 2013 is like the Hong Kong Convention (which has not yet entered into force internationally). The EU Regulation essentially applies the ship recycling requirements of the Hong Kong Convention to ships flagged with EU Member States, as well as certain requirements to non-EU flagged ships calling at EU ports.

A "Non-EU flagged ship": a ship flagged by a State which is not an EU Member State calling at a port or anchorage of an EU Member State must before 31st of December 2020 have a sampled Inventory of hazardous materials onboard. The vessels are to be surveyed and certified with a Statement of Compliance form the Flag or an authorized RO.

The vessels are to maintain this inventory throughout the life of the vessel. The RMS Procedure for Maintaining Inventory of Hazardous Material is listed out in the ***APPENDIX 12*** of this Manual.

7.8 Controlled Atmosphere

See procedures in the Ship's Instruction Manual

7.9 A.M.V.E.R. System

All vessels, where appropriate, must participate in the A.M.V.E.R. system. We do not wish our vessels to participate simply to win awards or compile statistics. We wish to feel satisfied that our participation is genuinely useful.

The A.M.V.E.R. System is a mutual worldwide assistance program between ship and shore for the purpose of coordinating "Search and Rescue" efforts. The United States Coast Guard collects from all merchant vessels (sailing reports and periodic position reports), covering Atlantic, Pacific and Indian Oceans. This information is plotted at the A.M.V.E.R. Center in New York.

It will be obvious that the successful working of this system depends entirely on the co-operation of the vessels. This co-operation is not only important for the safety of other vessels but might also be of importance for the safety of your vessel and crew.

Each vessel must have onboard a full set of General Instructions for the A.M.V.E.R System, including a list specifying the radio stations accepting A.M.V.E.R reports. A.M.V.E.R messages must be cabled via these stations and not via commercial coast stations. The Master must keep a set of these instructions for ready reference.

7.10 Medical

7.10.1 Ship's Medicine Chest and First Aid At Sea

Before sailing, the Master must ensure that there is a copy of "The International Medical Guide for Ships" and that the Ship's medicine Chest is replenished as per MSN 1726 Category A for Bahamian Vessels.

Replacements should be made as necessary to maintain such stocks.

7.10.2 Keys of Medicine Chest

The medicine chest must be kept locked at all times, keys being in the care of the Master, Chief Mater and/or the Officer responsible for the maintenance of the Ship's Medicine Chest.

7.10.3 Surgical Instruments

The instruments shall only be used for the purpose for which they are designed, and must not be removed from the medicine chest, except when required for medical purposes. They shall be returned to the chest immediately after cleaning and sterilizing. In all cases, instruments are to be re-sterilized before use.

7.10.4 Ship's Hospital

It is the master's responsibility to ensure that the Ship's Hospital is kept in readiness at all times.

7.10.5 Dangerous and Narcotic Drugs

Dangerous and narcotic drugs are to be kept in the Master's Safe. The Master must keep a list of all dangerous or narcotic drugs, amended as necessary after any use of such drugs, and shall periodically check such drugs for discrepancies. In addition, a Poison and Narcotics Book must be kept in the medicine chest. Whenever such drugs are used, an entry must be made detailing date, name of patient, nature of illness and the dosage given. -Such entry to be signed by the Master. On the Change of Command, the relieving Master shall check the

quantities of Poisons and narcotics on board in the presence of the Master relieved. An entry to this effect is to be entered in the Official Log-Book.

7.10.6 Medical Attention Ashore

In the event that a crewmember requires medical attention ashore, the Master shall prepare the necessary forms and follow the distribution procedure. Experience has shown that it is most important to prepare these forms with careful attention to details.

7.10.7 Medical Treatment On Board

A Medical Log Book shall be kept in the medicine chest and on every occasion when medical treatment is given no matter of how minor nature, an entry must be made in this book details the date, name of the patient, nature of illness or injury and treatment given. This book will be retained on board and treated as a confidential document, and is in addition to any entries which are required to be entered in the Deck Log Book.

7.10.8 Medical Log

All Masters are to maintain an accurate Medical Log covering all illnesses or injuries aboard the vessel.

See Gard Guidance to Master.

7.10.9 Deviation – Repatriation

If it becomes necessary to divert a vessel to land a sick or other person, accurate log entries of the diversion shall be kept until the vessel returns to her normal track.

See Gard Guidance to Master

7.10.10 Death at Sea

A detailed report covering all aspects of the death and disposal of the remains shall be submitted by the Master from the next port of call.

See Gard Guidance to Master

7.10.11 Disposition of Seaman's Effects

Every precaution shall be taken to safeguard a seaman's personal effects left aboard a vessel whenever a seaman, for any reason fails to remove these effects himself. The following steps shall be taken:

a) The Master shall direct an officer to make a careful inventory of the personal effects, and to prepare two copies of the inventory, properly witnessed by a responsible second party. The original will be submitted to the Crewing Superintendent.

b) When a seaman is separated from the vessel for hospitalization, his personal effects, unless he is able to personally take them ashore with him, should be placed ashore in the port of his separation in the custody of the agent for delivery to the seaman. Notify the Crewing Superintendent of the disposition of the effects.

c) In cases of death, fail-to-join/desertion, a seaman's effects must be retained onboard under safe storage until such time as the disposition is decided upon by the Crewing Superintendent.

7.10.12 Persons designated to provide medical care or medical first aid

The Second Officer, supported by the Master and Chief Officer is designated as the medical provider on board vessels managed by **RMS**.

In accordance with BMA Bulletin #148, Section 3.5.2.3 (as amended) seafarers with designated medical assigned tasks shall undergo, at intervals not exceeding five (5) years intervals, refresher courses or other appropriate training and or instructions to enable them to maintain and increase their knowledge and skills and to keep up- to-date with new developments. Documentary evidence of this training or instructions shall be maintained **and the BMA may accept a valid STCW Certificate of Competency as documentary evidence.**

7.11 RISK ASSESSMENT

7.11.1 What is Risk Assessment

In layman terms it is a subjective analysis of What can go wrong & How to prevent it? In its more erudite form, Risk Assessment is a systematic process of comparing the likelihood of occurrence of a danger with the severity of its consequence in order to determine whether measures are necessary to manage the level of risk associated.

7.11.2 Objective of Risk Assessment

The principal objective of Risk Assessment is to facilitate a careful examination of various shipboard operations and tasks (routine & non-routine) with a goal to identify hazards that can cause injury or damage to property and the environment and determine if procedures and controls are necessary to prevent harm.

In doing so it also serves to elevate awareness of the ship's crew toward Safety, Health, and Environment aspects of the work environment on board.

7.11.3 When should Risk Assessment be undertaken

Every task on a vessel has some attendant risks that must be constantly assessed. Certain tasks pose more severe consequences than others and, in conjunction with the frequency of their occurrence, can result in injury, fatal accidents, and damage to the vessel and/or the environment.

A formal Risk Assessment should be undertaken for any task that, on initial quick appraisal, poses a risk level that is not acceptable and has no previous record of a formal assessment. Even where one is on record, a review of the initial Risk Assessment may become necessary at periodic intervals due to changed circumstances (Refer 7.11.6)

The following tasks and situations will require a Risk Assessment to be undertaken:

- Any task that, at immediate appraisal, presents a risk of injury, death, damage to the vessel, other property and/or environment, whether a checklist exists or not.
- Routine or non-routine work involving heavy equipment, cranes, loads, polluting or hazardous materials, electrical installations, over side or aloft work, hot work, or maintenance of critical machinery.
- When operational conditions associated with a task change e.g. change of equipment, procedure, work location, crew skill or fatigue, weather, vessel movement in a seaway, etc.
- Post occurrence of a hazardous event to determine the effectiveness of existing controls and procedures.

7.11.4 Training

Each vessel is provided with a computer-based training module (course) by Videotel to assist in familiarizing with the principles and methodology of Risk Assessment, and its application.

Each Management and Operations Level officer on board is required to complete the course and submit the certificate of completion to the RMS Crewing Superintendent. A copy must be retained on board for records.

In addition, the MCGA ***Code of Safe Working Practices for Merchant Seamen***, a current edition of which is provided to each vessel, should be used as a reference for explanations of the Risk Assessment guidelines in this section.

7.11.5 Documentation and records

Record of each Risk Assessment conducted using QSMS Risk Assessment Form (Checklist) # 58 must be retained in the specified folder.

The Risk Assessment folder should contain the following documents filed in the order below:

a) Correspondence, bulletins, advisories related to risk assessments.
b) Record of initial assessments and periodical reviews (re-assessments) at specified intervals or post event.
c) Record of training (CBT completion).

7.11.6 Periodical review of Risk Assessments

A risk assessment ***will require a review*** at intervals varying from a short one up to a year, depending on the level of risk associated with a task, to ensure that any significant changes in circumstances are re-assessed for impact on hazards or risk levels with the same objective as the initial assessment.

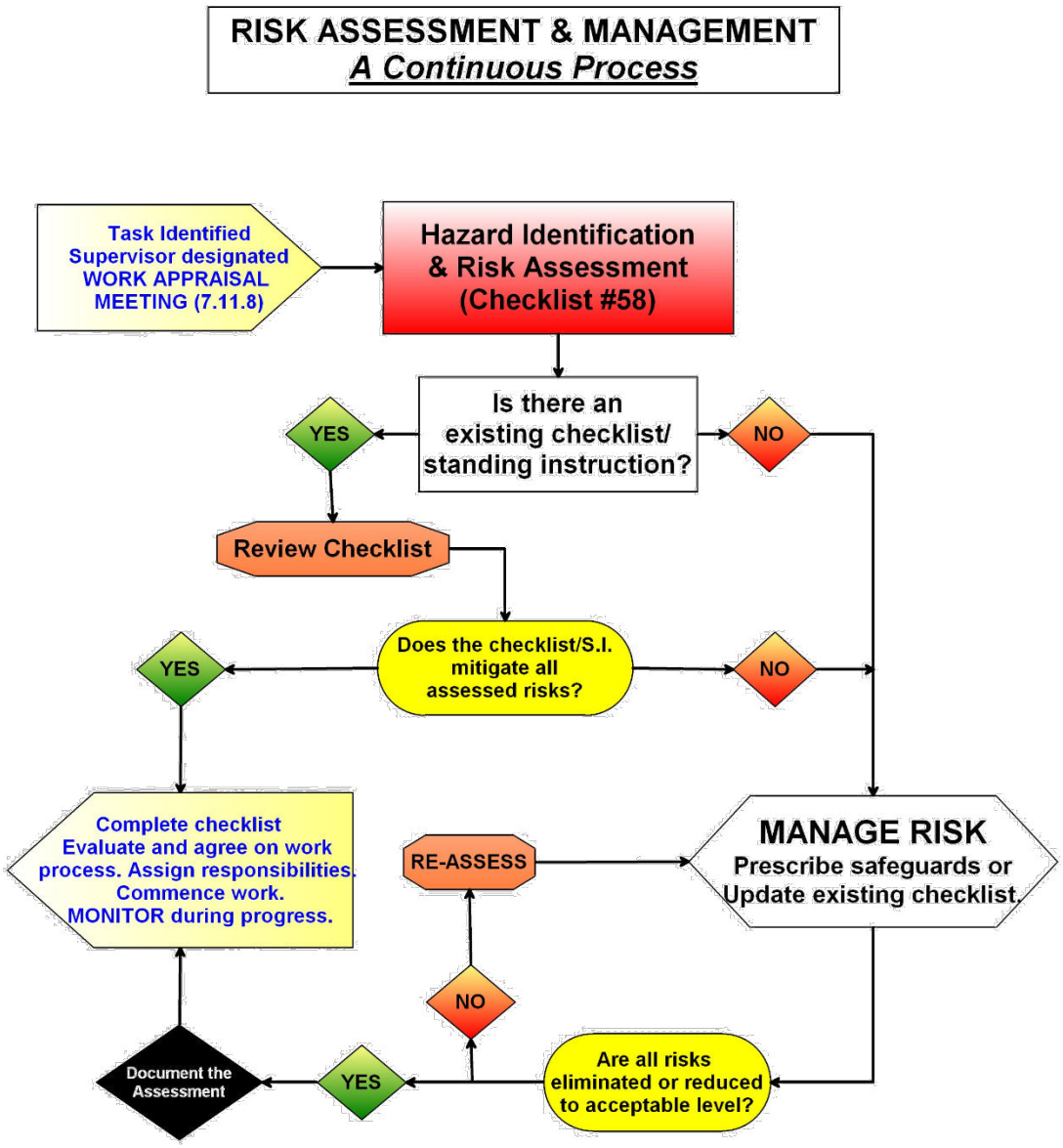
Examples of altered circumstances that will require a review of Risk Assessment are:

- operational procedures;
- change of equipment or tools;
- change of materials or products handled;
- conditions at the place of work changed – weather, ship motion, other;
- change in skill levels of personnel or manpower allocation;
- same work, different location;
- ***repetitive routine tasks*** where a degree of complacency tends to set in

7.11.7 The Risk Assessment – elements and flow chart

The broad elements of the risk assessment process are:

(a) classify work activities/identify task;
(b) identify hazards and personnel at risk;
(c) identify risk controls;
(d) estimate the risk;
(e) decide the tolerability of the risks;
(f) prepare risk control action plan (if necessary);
(g) review adequacy of action plan;
(h) ensure risk assessment and controls are effective and up to date



Work Appraisal Meeting - prelude to Risk Assessment

To meet the objective outlined in 7.11.2 a ***Work Appraisal Meeting*** must be held at the location of the planned task.

7.11.7.(a) Responsibility

A designated ***Team Supervisor*** is responsible to conduct the ***Work Appraisal Meeting*** with the allocated work group.

7.11.7.(b) Purpose

The goal of the ***Work Appraisal Meeting*** is to identify possible hazards, the level of associated risk, the existing controls in the checklist or standing instruction provided, where there is one, and ***whether the situation requires a formal Risk Assessment or review by the Department Head***.

In determining whether a Risk Assessment is necessary para ***7.11.3*** and **7.11.6** should be referred to.

7.11.7.(c) What should the Work Appraisal Meeting cover?

The ***Work Appraisal Meeting*** agenda will take into account the following:

- The task to be undertaken and how it will be conducted;
- Identify hazards and the controls necessary to eliminate them;
- Does the existing checklist serve the purpose to mitigate all hazards;
- Are contingency measures in place in case of a failure or loss of a control equipment;
- Are individual responsibilities for the work assigned, i.e. who does what;
- Is an individual assigned to monitor the workflow to ensure no new hazards develop that require mitigating action;
- Are all team members in agreement with the risk level and the measures to reduce them to "as low as reasonably practicable" (ALARP) before the task commences.

7.11.7.(d) Reporting and recording the Work Appraisal Meeting?

All Work Appraisal Meetings should be ***reported to the head of department and recorded.*** The record should be retained with the associated checklist and Risk Assessment Form.

7.11.8 Hazard Identification and Categorization

The primary questions that assist hazard identification are:

- Is there a source of danger?
- Who or what can be endangered?
- In what way could this endangerment occur?

Identify the source/nature of the hazard:

- Mechanical, physical
- Electrical
- Radiation
- Chemical, biological
- Heat, fire, explosion
- High pressure
- Psychological
- Fatigue and/or crew ability

With the above in mind identify if any of the following hazards, or its potential, exist:

- tripping, slipping or falling on the same level;
- slipping or falling from a height;
- head injuries - falling tools or other objects from above, low head room, obstructions;
- suffocation - low ventilation, low oxygen or presence of toxic or hazardous gases;
- failure of PPE;
- fire hazard;
- poor illumination;
- accident due to structural weakness or poor condition of work equipment, tools;
- electrical shock;
- accident due to presence of stressed ropes or wires, moving machinery,
- excessive heat, cold, noise, wind, rain, snow, vessel movement;
- presence of oil or other pollutants;
- navigational risks or hazards;
- hazards ***from*** plant and machinery associated with assembly, commissioning, operation, maintenance, modification, repair and dismantling;
- hazards ***to*** plant and machinery, which may result in their destruction or the loss of availability of essential equipment;

Preventive or mitigating measures and controls become imperative for any of the above situations before the work can be commenced.

The above list is not exhaustive and department heads and supervisors should carefully **examine the work area for any other hazards** that may require implementation of additional control measures.

Amongst **considered consequences** of hazards are also the impact on Company business, reputation, loss of voyage or cargo, and other financial effects.

7.11.9 Definitions

Hazard	Any potential source of harm or damage, or a situation with the potential for creating harm or damage.
Likelihood	The probability of occurrence of harm associated with the hazard (Table 7.11.11).
Severity	The degree of harm associated with the hazard (Table 7.11.12).
Consequences	The degree of negative impact, loss or result, associated if the hazard actually occurs.
Risk & Risk Level	The chance of something adverse happening, and a scale to classify it as a measure of the likelihood against the potential severity of harm resulting from it (Table 7.11.13)

7.11.10 Likelihood Table

Categories for the likelihood of harm	Very Likely	Likely	Unlikely	Very Unlikely
Type of occurrence	Typically experienced at least once every six months by an individual.	Typically experienced once every five years by an individual.	Typically experienced once during the working lifetime of an individual.	Less than 1% chance of being experienced by an individual during their working lifetime.

Source: British Standard 8800:2004 Pg. 48

7.11.11 Severity Table

Extreme Harm	Moderate Harm	Slight Harm	No Harm
Personnel: Severe injury, permanent total or partial disability, loss of life. Environment: extreme to extensive environmental damage with long term consequence (i.e. oil spill outside contractor assistance required) Vessel/Cargo/other Property: Loss of vessel, cargo; extensive damage to other property. High cost impact. Business: Missed voyage, Major impact on Company business and reputation.	Personnel: Injury resulting in hospitalization or repatriation, post disembarkation. Environment: Damage with no long term consequence (i.e. oil spill contained by crew, removable spill in water) Vessel/Cargo/Other Property: Medium damage which may require outside assistance. Higher cost impact. Business: medium disruption/delays, possibility of missed voyages and business loss.	Personnel: Superficial injury and temporary ill health requiring first aid & able to resume work the next day Environment: Minor environmental damage (i.e. unacceptable funnel emissions) Vessel/Cargo/Other Property: Minor damage which does not requiring outside assistance. Low cost impact. Business: Minor disruption and unplanned delay, no missed voyages or business loss.	Personnel: No injury Environment: No environmental impact Vessel/Cargo/Other Property: No damage Business: No missed voyages or delays or business loss. No cost impact.

Risk Category Table

Category of risk	Evaluation of tolerability
Very low	Acceptable
Low	Tolerable
Medium	Risks that should be reduced
High	so that they are tolerable or acceptable
Very high	Unacceptable

7.11.12 Risk Management – Eliminating or minimizing the consequences of assessed risks

The shipboard management team is guided to review the Risk Assessment library on board during weekly Work Planning and Safety Meetings. Maintain a list of actions for sustaining and improving controls for consistent effectiveness of mitigating processes.

- Where possible, eliminate the potential hazard or combat risks at source e.g. remove defective tools.
- If elimination is not possible, then attempt to reduce the risk to an acceptable e.g. deploy additional manpower.
- Allocate personnel with appropriate skills, ability, experience, rest.
- Deploy available technology to improve controls.
- Use a beneficial mix of technical and procedural controls.
- Give emphasis to measures that protect everyone.
- Ensure proper emphasis on planned maintenance of machinery, safeguards, alarms and warning systems, measuring instruments, etc.
- Ensure backup measures in the event of emergencies are in place and in good working condition.

Department heads should discuss the Checklist (RA form) # 58 with staff prior undertaking any operation that poses significant risks.

Invite comments to the Risk Assessment Form #58 and task Checklists from work group members and submit them to the QSMS Department/DVM for remedial action.

7.11.13 Task monitoring and re-assessment

The monitoring of a work process for conformity to the predicted plan is as critical as the initial assessment and planning. Deviations resulting from altered circumstances, e.g. sudden weather change, or failure of PPE or other safety equipment, may require a re-assessment of new hazards and a different set of controls to be implemented.

Finally, there is no substitute to being alert, observant, pro-active, and responsive to your work environment at all times. That is any good seafarer's innate ability!

7.12 Cyber Security

IMO recognizing the urgent need to raise awareness on cyber risk threats and vulnerabilities to support safe and secure shipping, (which is operationally resilient to cyber risks) approved through its Maritime Safety Committee (MSC) and the Facilitation Committee, the MSC.428(98) and the MSC-FAL.1/Circ.3. This resolution provides high-level recommendatory recommendations for maritime cyber risk management that could be incorporated into existing risk management processes.

The Vessel Management has utilized the above-mentioned circulars to prepare the RMS Cyber Security Manual.

This Manual

1. Identifies the systems, assets, data, and capabilities that, when disrupted, pose risks to ship operations, it also defines personnel roles and responsibilities for cyber risk management,
2. Implements risk control processes and measures, and contingency planning to protect against a cyber-event and ensure continuity of vessel's operations
3. Helps in developing and implementing activities necessary to detect a cyber-event in a timely manner
4. Assists in developing and implementing plans to provide resilience and to restore systems necessary for vessel's operation due to a cyber event,
5. It identifies measures to back-up and restore systems necessary for vessel's operations if impacted by a cyber-event.