



Oil Companies International Marine Forum

OVID

OVIQ 7100 Report XXXX-0000-0000-0000

Vessel Name	Sample Vessel
IMO	0000000
Company	OCIMF OVID Member Test
Operational Variants	ERRV, Cable lay, Diving, Accommodation/ Flotel, Well servicing and sub-sea operations, ROV operations, Ice Operations, Helicopter operations, DP,

1. General information

1. Vessel/unit particulars

1.1.1. Name of the vessel/unit (Text)

Note: Prefixes (MV, SS etc.) must not be used unless they are actually a part of the registered name of the vessel/unit. The name must be entered exactly as it appears on the Certificate of Registry.

1.1.2. IMO/VIN number (Text)

State if not IMO Number

1.1.3. Country of registration of vessel/unit (Text)

If a change of country of registration has taken place within the past 6 months, record the date of change and the previous country of registration in the chapter end Additional Comments.

1.1.4. Gross tonnage (Number)

State if vessel/unit has not been measured.

1.1.5. Date vessel/unit delivered (Date)

1.1.6. Date of most recent major conversion, if applicable (Date/Not Applicable)

Provide brief details of most recent major conversion.

1.1.7. Date of inspection (Date)

Note: If the inspection extends to two or more days, record the circumstances in the chapter end Additional comments.

1.1.8. Place of inspection (Text)

1.1.9. Name of the company commissioning the inspection (Text)

1.1.10. Time the inspector boarded the vessel/unit (Time)

1.1.11. Time the inspector departed the vessel/unit (Time)

If the inspection took place over two or more days, in two or more sessions, or was carried out by more than one inspector, record the arrival and departure details in the chapter end Additional Comments.

1.1.12. Name of the inspector (Text)

1.1.13. Vessel/unit activity at time of inspection (Text)

1.1.14. Is an up to date OCIMF OVPQ available on board? (Yes/No/Not Seen)

1.1.15. Vessel/unit type (Text)

1.1.16. Geographic region vessel/unit normally operates in (Text)

1.1.17. Name of the vessel/unit's operator (Text)

Note: For the purpose of the OVID Programme, an 'Operator' is defined as the company or entity which exercises day to day operational control of, and responsibility for, a vessel/unit and, where applicable, holds the Document of Compliance under which the vessel/unit is named. The registered owner of a vessel/unit may or may not be the operator.

1.1.18. Address of the vessel/unit's operator (Text)

Note: If this report is to be forwarded to an alternative address, record the details.

1.1.19. Telephone number of the operator (Number)

1.1.20. Facsimile number of the operator (Number/Not Applicable)

1.1.21. E-mail address of the operator (Text/Not Applicable)

1.1.22. Date the current operator assumed responsibility for the vessel/unit (Date)

2. Additional comments

1.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section. Information of a non-confidential nature related to the circumstances surrounding the inspection should also be recorded here. Examples are the presence of the Operator's superintendent, unusual operations that hampered or curtailed the inspection, etc.

This is only an example of an OVID OVIQ and is not to be used as an official OVID inspection report

2. Certification and documentation

1. Certification

2.1.1. Are all the Class statutory certificates listed in the guidance, where applicable, valid and have the annual and intermediate surveys been carried out within the required range dates? (Yes/No/Not Seen/Not Applicable)

Inspector should undertake a spot check of certificates to validate OVPQ data.

Certificates may include the following:

- Certificate of Registry
- Certificate of Class
- Interim Certificate of Class
- Continuous Synopsis Record
- Document of Compliance. Note: where applicable, the issuing authority for the DoC and the SMC may be different organisations, but the name of the operator of the vessel/unit must be the same on both. There should be a copy (which need not be a certified copy) of the DoC on board.
- Safety Management Certificate
- Safety Equipment Certificate
- Safety Radio Certificate
- Safety Construction Certificate
- IOPP Certificate
- Loadline Certificate
- International Ship Security Certificate
- International Tonnage Certificate
- Minimum Safe Manning Document
- Diving Systems Safety Certificate
- Dynamically Supported Craft Construction and Equipment Certificate
- MODU Safety Certificate
- Ship Sanitation Certificate
- International Sewage Pollution Prevention Certificate
- International Air Pollution Prevention Certificate
- International Anti-Fouling System Certificate
- Offshore Support Vessel Certificate of Fitness
- High Speed Craft Safety Certificate
- Permit to Operate High Speed Craft
- ERRV Certificate of Survey
- Helideck Certificate of Survey
- Passenger Certificate

With respect to SOLAS certificates, if the language used is neither English nor French, the text shall include a translation into one of these languages.

Note: Situations may arise in cases where a Recognised Organisation (RO) issues the original certificates and the vessel/unit's flag State Administration conducts subsequent annual surveys. In such cases, it is acceptable for the flag State to endorse the RO's certificates to attest that the annual surveys have been conducted.

2.1.2. Name of Classification society (Text/Not Applicable)

If the vessel/unit has changed class within the past 6 months, record the previous classification society and the date of change as an Observation. State if vessel/unit is not classed.

2.1.3. Name of P and I Club (Text/Not Applicable)

The name of the owner should be the same as that on the Certificate of Registry. A P and I Club Certificate of Entry should be provided to prove membership for the current year, which usually begins on the 20th February.

2. Safety management

2.2.1. Does the vessel/unit have a formal safety management system? (Yes/No/Not Seen)

The Company should ensure that the safety management system operating on board the vessel/unit contains a clear statement emphasising the Master/OIM's authority. The Company should establish in the safety management system that the Master/OIM has the overriding authority and the responsibility to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary.

The inspector should undertake a spot-check of the list of contents of the procedures manuals to ensure that they are:

- relevant to the vessel/unit;
- user friendly;
- written in the working language of the crew.

And that they at least contain:

- a safety and environmental policy;
- emergency procedures;

- a description of the Master/OIM's and crew's responsibilities;
- operation plans;
- procedures for reporting non-conformities and for corrective action;
- maintenance programmes;
- procedures for auditing and reviews;
- programmes of drills,

The programme of drills must at least include emergency procedures for all credible emergency situations, such as, collision, grounding, flooding, heavy weather damage, structural failure, critical machinery failure, emergency towing, rescue from enclosed spaces, serious injury and medivac, and in addition abandon ship, man overboard, pollution clean up and ship security, including dealing with terrorism and piracy.

Occasionally the operator's procedures are available only in computerised versions. Ascertain whether there is adequate access for all personnel to a computer and whether adequate training has been given to all personnel in accessing the operator's procedures using one. In any case, a hard copy of the operator's navigation procedures should be available on the bridge. Make an Observation if paper and electronic systems differ.

2.2.2. Where appropriate, is there objective evidence that the safety management system complies with the requirements of the ISM Code?
(Yes/No/Not Seen/Not Applicable)

2.2.3. Does the operator's representative visit the vessel/unit at least bi-annually? (Yes/No/Not Seen)

Record the date of the last visit.

Verify that office managers have visited the vessel/unit to undertake a formal review of the safety management system within the last six months.

2.2.4. Is a recent operator's audit report available and is a close-out system in place for dealing with non-conformities? (Yes/No/Not Seen)

Note: Satisfactory evidence should record that corrective action was taken to rectify non-conformities. A close-out system, which includes a time limit for corrective action, informing the operator when completed and the operator ensuring that it has been, should be in place and the inspector should ensure that the required actions have been made within the required time. Operator's audits must not be used as a means to record Observations.

2.2.5. Does the Master/OIM review the safety management system and report to the operator on any deficiencies? (Yes/No/Not Seen)

Note: The Master/OIM's review should be carried out annually and documentary evidence should be available.

Make an Observation if no formal notification of the review has been submitted to the company and/or if no appropriate feedback has been received from the company.

3. Class documentation and surveys

2.3.1. Date of departure from the last drydock or underwater inspection (Date/Not Applicable)

State whether dry docking or underwater survey. In addition, if the last drydocking/underwater survey was unscheduled, record the date and the reason.

2.3.2. Is the vessel/unit free of conditions of class or significant recommendations, visas, memoranda or notations? (Yes/No/Not Seen/Not Applicable)

Record any conditions of class or significant recommendations, visas, memoranda or notations of any nature, including due dates as an Observation.

4. Publications

2.4.1. Are the publications listed in the guidance, as applicable to the vessel/unit, available? (Yes/No/Not Seen/Not Applicable)

The inspector should verify that all listed publications appropriate to the vessel/unit's size, operations and region of operation are provided.

The following list of publications is provided solely to assist in identification:

- SOLAS Consolidated Edition and Amendments
- International Ship and Port Facility Security Code
- International Safety Management Code
- International Standards for the Training, Certification and Watchkeeping of Seafarers
- MARPOL 73/78 Consolidated edition
- MODU Code
- Bridge Procedures Guide
- Collision Regulations, Consolidated edition
- Ship's Routeing
- International Code of Signals
- IAMSAR Manual (Volume III)
- International Medical Guide for Ships (or equivalent)
- IMDG Code

2.4.2. Are the documents listed in the guidance, as applicable to the vessel/unit, available? (Yes/No/Not Seen/Not Applicable)

Documents appropriate to the vessel/unit's operations may include:

- Guide to Helicopter/Ship Operations
- Oil and Gas UK Emergency Response and Rescue Vessel Management Guidelines

- Oil and Gas UK Emergency Response and Rescue Vessel Survey Guidelines
 - Guidelines for the Safe Management of Offshore Supply and Anchor Handling Operations
 - Guidelines for the Safe Packing and Handling of Cargo to and from Offshore Locations
 - Cargo Securing Manual
 - Code of Safe Practices for Merchant Seamen
 - IAGC Marine Geophysical Survey Manual
 - UKOOA Guidelines for the Management of Helideck Operations
 - CAP 437 Offshore Helideck Landing Area Guidance on Standards
 - IMCA Guidance Documents
 - MSF Guidance Documents
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5. Additional comments

2.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

3. Crew and contractor management

1. General

3.1.1. Are both crew and contractors required to comply with the vessel/unit's safety management systems in full? (Yes/No/Not Seen)

While on board the vessel/unit, all contract personnel should work within the vessel/unit's SMS and permit to work system.

3.1.2. Is there a process in place to ensure that any proposed bridging documents integrate effectively with the vessel/unit's safety management system? (Yes/No/Not Seen/Not Applicable)

Check that the process provides guidance on addressing any conflicts between the vessel/unit's SMS and charterer's requirements. Check also that there is a formal means of verification that the vessel/unit's crew understand the contents of the bridging document.

3.1.3. Are both crew and contractors required to comply with the vessel/unit's drug and alcohol policy and testing regime? (Yes/No/Not Seen)

While on board the vessel/unit, all contract personnel should comply with the vessel/unit's D&A policy, except if the Contractor's policy is more restrictive.

3.1.4. Is the drug and alcohol policy based on 'zero tolerance' (requiring zero BAC and zero drug content) for all on board the vessel/unit? (Yes/No/Not Seen)

This would include zero blood alcohol content when boarding the vessel/unit at any time or being in possession at any time while on board.

3.1.5. Is there a 'for cause' and 'post incident' testing requirement? (Yes/No/Not Seen)

If the answer is not 'Yes' an observation should be made.

3.1.6. Record the frequency of unannounced testing for alcohol and drugs and state the date of last test. (Text)

The frequency of unannounced testing should be sufficient so as to serve as an effective deterrent to abuse.

3.1.7. Is there a common language stipulated for on-board communication? (Yes/No/Not Seen)

Record which language is stipulated.

3.1.8. Is there a satisfactory system for ensuring effective communications between contractors, the vessel/unit's crew and third parties? (Yes/No/Not Seen)

Where a common language is not spoken by all on board, arrangements should be in place to ensure the effectiveness of communications, without risking mis-understanding or ambiguity, at all times. This should include information on muster stations, emergency alarms and emergency procedures.

3.1.9. Is the safety management system documentation in the common language? (Yes/No/Not Seen)

2. Crew-specific

3.2.1. Does the manning level meet or exceed that required by the Minimum Safe Manning Document? (Yes/No/Not Seen/Not Applicable)

3.2.2. Is an adequate number of personnel required to be on board to perform anticipated marine operations? (Yes/No/Not Seen)

There should be sufficient marine crew to manage all planned concurrent marine operations with proper oversight as if each operation was a stand-alone duty.

3.2.3. Do procedures address scenarios which may require down-manning of non-essential personnel from the vessel/unit? (Yes/No/Not Seen/Not Applicable)

There should be specific groups identified as critical or non-critical with a hierarchy for controlled evacuation should it be deemed necessary, for example, if LSA equipment is compromised or on the onset of heavy weather.

3.2.4. Are the marine crew members appropriately qualified for the operations and equipment on board? (Yes/No/Not Seen)

There should be documentary evidence that competency has been assessed by an appropriate authority for specialised positions such as crane drivers; banksmen; fork lift operators; riggers; Helideck crews; FRC crews; etc

3.2.5. Is there a competence assessment process for the marine crew on board? (Yes/No/Not Seen)

Describe whether formal or informal, and who is responsible for assessments

3.2.6. Does the company operate a formal appraisal system for marine crew? (Yes/No/Not Seen)

Comment if it is a developmental system; record an Observation if there is insufficient guidance for the assessor and/or the assessee cannot respond formally within the process.

3.2.7. Is HSSE awareness one of the appraised behaviours? (Yes/No/Not Seen)

State who makes the assessment.

3.2.8. Is there evidence to confirm that the Master/OIM does not sign-on incorrectly certificated crew members or those without their original certificates, nor release incumbents? (Yes/No/Not Seen/Not Applicable)

Confirm by sighting log book records that new personnel are signed on before relieved personnel depart.

3.2.9. Are provisions made to provide the vessel/unit's crew with medical and first aid training and facilities? (Yes/No/Not Seen)

There should be documentary evidence of training courses and competency assessments

3.2.10. Are GMDSS requirements met with regard to qualified radio operator personnel, watchkeeping, and designation for distress communications? (Yes/No/Not Seen/Not Applicable)

Every ship shall carry personnel qualified for distress and safety radio communication purposes to the satisfaction of the Administration. That person should not be the Master (SOLAS IV/16.1)

3.2.11. Do all personnel maintain hours of rest records and are the hours of rest in compliance with STCW requirements? (Yes/No/Not Seen/Not Applicable)

All persons who are assigned duty as officer in charge of a watch or as a rating forming part of a watch shall be provided a minimum of 10 hours rest in any 24-hour period. The hours of rest may be divided into no more than two periods, one of which shall be at least 6 hours in length.

The requirements for rest periods need not be maintained in the case of an emergency or drill, or in other overriding conditions. 'Overriding operational conditions' are defined (Section B VIII/1.1) as to mean only essential work which cannot be delayed for safety or environmental reasons, or which could not have been reasonably anticipated at the commencement of the voyage.

Notwithstanding the above, the minimum period of 10 hours may be reduced to not less than 6 consecutive hours provided that any such reduction shall not extend beyond 2 days and not less than 70 hours of rest are provided in each 7-day period.

3.2.12. Have all deck officers attended bridge resource management courses? (Yes/No/Not Seen/Not Applicable)

Note: These should be formal shore-based courses and officers should have evidence of having attended them.

3.2.13. Have the Master and/or any officers with direct responsibility for ship handling received appropriate formal training in ship handling for the type of vessel/unit? (Yes/No/Not Seen)

Make an Observation if the Master and/or any officers having responsibility for ship handling have been on this type of vessel/unit for less than 2 years sea time, without formal training, or if the type of operation/manoeuvring is new to the them.

3.2.14. If the Master has been newly-hired within the last 12 months, did he receive appropriate pre-command training, including documented understanding of the Company's expectations? (Yes/No/Not Seen/Not Applicable)

In-house induction in Company expectations and requirements may be demonstrable with an Appointment Letter (expectations of Company attached) indicating date of office visit / induction.

3.2.15. Have all the deck officers received formal documented training for the navigational equipment fitted on board? (Yes/No/Not Seen/Not Applicable)

Specify whether the training is at a recognised shore-based establishment, formal on-board training with an external trainer, or CBT on board?

3.2.16. Does the company have a documented disciplinary process which facilitates removal of personnel from the vessel/unit if deemed to be a risk? (Yes/No/Not Seen)

This should include, as a minimum, non-compliance with SMS provisions, anti-social behaviour; alcohol/drug use; or ill discipline.

Check that the Master/OIM has authority to take appropriate action and that he is required to inform the vessel/unit's operators of action taken.

3.2.17. Does the company have a medical policy in place? (Yes/No/Not Seen/Not Applicable)

This should specify certification requirements; when to report issues; vaccination requirements; who is responsible for welfare on board; and reporting of prescription and non-prescription drugs.

3.2.18. Does the company promote high standards of housekeeping and hygiene awareness, particularly in food handling and storage? (Yes/No/Not Seen)

Confirm company procedures address all issues, including segregation of area from work dress to rest/recreational dress; appropriate provision of toilet facilities; linen changes weekly or better; and that good health and hygiene practices are publicised and enforced.

3. Contractor-specific

3.3.1. Is there evidence of training contractors in the content of the vessel/unit's safety management system? (Yes/No/Not Seen/Not Applicable)

Look for records of training and sample responses from contractors

3.3.2. Is there evidence of all contractors being familiarised with the vessel/unit's emergency procedures and requirements? (Yes/No/Not Seen/Not Applicable)

This may be part of the initial induction process, and should include personal reference documents

3.3.3. Are contractors encouraged to be involved in the vessel/unit's safety management processes, such as safety meetings? (Yes/No/Not Seen/Not Applicable)

Look for evidence of participation or documented input to the agendas. If positively excluded from input, make comment as an Observation.

3.3.4. Are the contractors appropriately qualified for their operations and the equipment placed on board the vessel/unit? (Yes/No/Not Seen/Not Applicable)

Is there evidence that contractor staff have appropriate training and "rules of engagement" for their plant and equipment?

3.3.5. Are procedures in place to verify the adequacy of contractor's equipment before first use? (Yes/No/Not Seen/Not Applicable)

3.3.6. Have any additional hazards associated with contractor's operations and equipment been identified and risk assessed and appropriate control measures put in place? (Yes/No/Not Seen/Not Applicable)

Control measures should include appropriate medical training.

3.3.7. Are contractors aware that they must comply with shipboard accident/incident reporting and investigation processes? (Yes/No/Not Seen/Not Applicable)

There should be a clear understanding that accidents and incidents amongst the contractor crew must be reported.

3.3.8. Do contractors supply appropriate PPE? (Yes/No/Not Seen/Not Applicable)

Ascertain range of equipment provided; suitability for jobs expected; and equipment retire/renewal processes

4. Additional comments

3.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

4. Navigation

1. Navigation

4.1.1. Is the vessel/unit provided with comprehensive operator's navigation instructions and procedures? (Yes/No/Not Seen)

Notes: The navigation, training and bridge procedures policies should be reviewed. The existence of established bridge organisation procedures and the professional application of ship handling and navigational practices in compliance with international regulations should be ascertained. Bridge manuals and navigation procedures should include general information and requirements on bridge organisation, watchkeeping, navigation and navigation equipment, charts, pilotage and port arrival and departure procedures.

The operator's procedures should include at least the following:

- a clear statement that safety of life and the safety of the vessel/unit take precedence over all other considerations;
- allocation of bridge watchkeeping duties and responsibilities for navigating procedures;
- a clear definition of the duties of the watch-keeping officers;
- circumstances when the master must be called;
- procedures for voyage planning and execution;
- chart and nautical publication correction procedures including, if appropriate, electronic chart corrections;
- procedures to ensure that all essential navigation equipment is available and fully operational;
- position reporting procedures;
- recording of voyage events.

A hard copy of the operator's navigation policy and procedures must be available on the bridge.

4.1.2. Do the vessel operating procedures require a minimum of two crew members, one being the Master or a suitably qualified and experienced officer, to be on the bridge throughout operations alongside an installation? (Yes/No/Not Seen/Not Applicable)

A minimum of two personnel capable of manoeuvring the vessel away from the installation should be available when within the 500 m zone. Best practice would be for both to be qualified deck officers.

4.1.3. Is there a documented procedure in place for entry into the 500 m/ safety zone? (Yes/No/Not Seen/Not Applicable)

Procedure should include the use of checklists to confirm bridge and engine-room status and to limit operational activities on board, such as hot work, while in the 500 m/ safety zone.

4.1.4. Are check lists, such as those for pre-arrival, pre-departure, 500 m zone, watch handover and pilot-master interchange being completed? (Yes/No/Not Seen)

4.1.5. Do the vessel procedures clearly identify the actions to be followed when changing the manoeuvring position on the bridge, taking into account the physical location of the vessel in relation to the platform and/or the engine/generator status? (Yes/No/Not Seen/Not Applicable)

Procedures should include a requirement to test control functions in a safe location after changeover.

4.1.6. Does the operator provide guidance on minimum under keel clearance and squat? (Yes/No/Not Seen)

4.1.7. Are deck log books and engine movement (bell) books correctly maintained and is an adequate record being kept of all the navigational activities? (Yes/No/Not Seen/Not Applicable)

4.1.8. Are records maintained of fire rounds being completed after each watch? (Yes/No/Not Seen)

Note: A lookout should not leave the bridge during the hours of darkness. Rounds of the vessel/unit should typically be conducted after the end of each watch.

4.1.9. Are the vessel/unit's manoeuvring characteristics displayed on the bridge? (Yes/No/Not Seen/Not Applicable)

For all ships of 100 m in length and above, a pilot card, wheelhouse poster and manoeuvring booklet should be provided. (IMO Res. A.601 (15)). For vessels/units of less than 100 metres in length, a manoeuvring diagram is not required by legislation. However, crew should be able to demonstrate familiarity with the manoeuvring characteristics of the vessel/unit.

4.1.10. Are auto to manual steering changeover procedures clearly identified? (Yes/No/Not Seen/Not Applicable)

Simple operating instructions with a block diagram showing the change-over procedures for remote control systems and steering gear power units shall be permanently displayed on the navigation bridge and in the steering gear compartment. (SOLAS V/26.3.1)

4.1.11. Do vessel/unit's officers demonstrate a full understanding of changeover practices? (Yes/No/Not Seen/Not Applicable)

Check that there is a ready means to identify which mode of steering is engaged.

4.1.12. Has the master/OIM written his own standing orders and are night orders being completed? (Yes/No/Not Seen/Not Applicable)

Notes: Standing Order and Night Order Books should be checked to ascertain that all officers are instructed as to their responsibilities. Standing orders should be written by the master to reflect his own requirements particular to the vessel/unit, the trade and the experience of the deck officers

aboard at the time. Night orders should be written every night.

4.1.13. Have the deck officers countersigned the master/OIM's standing and night orders as being read and understood? (Yes/No/Not Seen/Not Applicable)

4.1.14. Is there a procedure for checking and recording heading reference system errors? (Yes/No/Not Seen)

Checking and recording should be appropriate for the equipment carried and the vessel/unit's operating area. Magnetic compass errors should be confirmed as being in general agreement with the deviation card.

4.1.15. Has a system been established to ensure that nautical publications and charts, paper and/or electronic, for the intended voyage are on board, current and corrected up-to-date? (Yes/No/Not Seen)

All vessels/units should carry adequate and up to date official nautical charts, Sailing Directions, lists of lights, notices to mariners, tide tables and all other nautical publications necessary for the intended voyage/operations.

An on board chart and publication management system is recommended to ensure that records are kept of what charts and publications are carried and when they were last corrected.

Note relating to the specific use of electronic charts. To use ECDIS as a stand-alone system without paper charts, two fully independent, IMO type-approved vector chart systems are required.

4.1.16. Is a lookout maintained at all times when the vessel/unit is at sea? (Yes/No/Not Seen)

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate to the prevailing circumstances and conditions as to make a full appraisal of the situation and the risk of collision. (Colregs Rule 5)

The look-out must be able to give his full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task. (STCW A-VIII/2-3.1/14)

The officer in charge of the navigational watch may be the sole look-out in daylight provided that on each occasion:

- the situation has been carefully assessed and it has been established without doubt that it is safe to do so;
- full account has been taken of all relevant factors including, but not limited to:

State of weather;

Visibility;

Traffic density;

Proximity of dangers to navigation; and

The attention necessary when navigating in or near traffic separation schemes;

- assistance is immediately available to be summoned to the bridge when any change in the situation so requires. (STCW A-VIII/2-3.1/15)

It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper look-out is maintained. In a ship with a separate chartroom the officer in charge of the navigational watch may visit the chartroom, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that a proper look-out is maintained. (STCW A-VIII/2-3.1/32)

4.1.17. Was a comprehensive passage plan available for the previous voyage and did it cover the full voyage from berth to berth utilising appropriate charts and publications? (Yes/No/Not Seen/Not Applicable)

Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using appropriate charts and publications for the area concerned. (SOLAS V/34 and IMO Res. A.893)

Notes: The passage plan should be completed by an officer and checked by the master.

Use of the Nautical Institute publication Bridge Team Management reinforces the recommendations contained in Chapter 2 of the ICS Bridge Procedures Guide.

Passage planning should be carried out on the chart, although there is a place for the use of a conning notebook, or some information gathered elsewhere. Excessive information in the navigational areas of a chart can be avoided by recording the information away from the track and drawing attention to it by a line or reference letter.

The following should be marked on the chart, where it enhances safe navigation:

- parallel indexing (not from floating objects unless they have been first checked for position);
- chart changes;
- methods and frequency of position fixing;
- prominent navigation and radar marks;
- no-go areas (the excessive marking of no-go areas should be discouraged – see below);
- landfall targets and lights;
- clearing lines and bearings;
- transits, heading marks and leading lines;
- significant tides or current;
- safe speed and necessary speed alterations;
- changes in machinery status;
- minimum under keel clearance;
- positions where the echo sounder should be activated;

Crossing and high density traffic areas;

- Safe distance off;
- Anchor clearance;
- Contingency plans;

- Abort positions;
- VTS and reporting points, etc.,

Charted passage planning information should not obscure printed details, nor should the information on charts be obliterated by the use of highlight or felt-tip pen, red pencil, etc.

No-go areas should be highlighted, but should be reserved for those areas where the attention of the navigator needs to be drawn to a danger such as shallow water or a wreck close to the course line. Extensive use of no-go areas should be discouraged. No-go areas vary with change of draft and tide and will therefore also vary with the time of passage. They should not therefore be permanently marked.

All courses previous to the last voyage should have been erased. Course lines must not be marked in ink, although it is acceptable to plot alter course positions in ink where these are frequently in use.

Charts of at least the complete previous voyage should be checked to determine that the vessel/unit has been safely navigated. The correct use of traffic separation zones, intervals between position fixes, maintenance of a safe distance off the coast, avoidance of prohibited areas and dangerous wrecks, adherence to printed notes on the charts, etc., will provide evidence of safe navigation.

4.1.18. Is the echo sounder recorder marked with a reference date and time on each occasion it is switched on? (Yes/No/Not Seen/Not Applicable)

Note: The echo sounder recorder should be switched on prior to each approach to shallow water and port entry and prior to departure and remain in operation while in shallow waters. The date and time of switching on should be marked on the recorder chart. In addition, the date and time of passing significant land or seamarks should be marked on the recorder. Many modern electronic echo sounders have an in-built 24-hour memory which can be recalled. If an electronic memory is not provided, the echo sounder should be provided with a printed record. Where an electronic display history is provided to record trending and a VDR to record times, a "Y" response should be made, together with a short explanation in Other comments.

4.1.19. Are the factors necessary to identify a safe waiting position defined in the vessel/unit's operating manual? (Yes/No/Not Seen/Not Applicable)

Factors to be taken into account include loss of propulsion, adverse weather, prevailing wind and tide and conflicting traffic.

4.1.20. Do procedures clearly prohibit the use of offshore installations as way points? (Yes/No/Not Seen)

Courses should not be set directly to an installation.

4.1.21. During pilotage, was the position of the vessel/unit adequately monitored? (Yes/No/Not Seen/Not Applicable)

The safe progress of the vessel/unit as planned should be monitored closely at all times. This will also include track monitoring and regular fixing of the position of the vessel/unit, particularly after each course alteration, and monitoring underkeel clearance.

Verbal orders from the pilot also need to be checked to confirm that they have been carried out correctly. This will include monitoring both the rudder angle and rpm indicators when helm and engine orders are given. (Bridge Procedures Guide 3.3.3.4)

4.1.22. Is there an adequate system for dealing with navigation warnings and are they being charted? (Yes/No/Not Seen)

Notes: A system should be in place for monitoring navigational warnings appropriate to the vessel/unit's trading area and for ensuring relevant navigational warnings are brought to the attention of the watchkeeping officers.

Such a system must include an adequate, up to date filing system for Temporary and Preliminary Notices, Navarea and Navtex warnings. Relevant warnings must be charted and the chart they have been entered on must be recorded on the warning notice in order that the warning can be removed when the notice is cancelled.

Navtex warnings should be monitored by the officer on watch at the time of receipt. He should ensure that the system is maintained by initialling the warnings received to show that they have been checked as to whether they are relevant to the current voyage. Those which are relevant should be charted.

4.1.23. Is all navigation equipment in good order? (Yes/No/Not Seen)

Note: Regardless of whether a vessel/unit is required by legislation to carry specific navigational equipment, if equipment is fitted then it should be operational. Such equipment may be a course recorder, off-course alarm, voyage data recorder, electronic chart display or engine order logger/printer. Random checks should be made to ensure that equipment is operational.

4.1.24. Are navigation lights in good order? (Yes/No/Not Seen)

Note: Primary and secondary systems should be in good order, and there should be a procedure to check the navigation light failure alarm.

4.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

5. Safety and security management

1. General

5.1.1. Are all crew members aware of the identity and contact details of the Designated Person Ashore (DPA) or appropriate shore-based contact? (Yes/No/Not Seen/Not Applicable)

5.1.2. Has a vessel/unit safety officer been designated and trained to undertake this role? (Yes/No/Not Seen/Not Applicable)

Note: One of the primary functions of the safety officer is to inspect all areas of the vessel/unit on a regular basis for safety compliance and to report any deficiencies noted. The purpose is to raise awareness, prevent accidents and to identify regular occurrences that might require the operator's intervention on a fleet-wide basis. The function of the safety officer may not involve equipment maintenance, although it does include identifying equipment deficiencies. Safety Officer training can include in-house or formal shore based training. Training records must match the job description for the Safety Officer within the Safety Management System.

The safety officer should work closely with any project-appointed HSE personnel.

5.1.3. Are the vessel/unit's officers familiar with the operation of fire fighting, life saving and other emergency equipment? (Yes/No/Not Seen)

Note: Personnel should be familiar with the operation of the fixed fire fighting systems, the main and emergency fire pumps, the emergency steering gear, the donning and use of breathing apparatus and oxygen resuscitation equipment. Appropriate records should be maintained.

5.1.4. Is personal protective equipment provided as required? (Yes/No/Not Seen)

Note: PPE may include as boiler suits, safety footwear, eye and ear protection, safety harnesses, fall arrestors, and chemical protective equipment etc.

Procedures should include the company's requirements for the inspection and replacement of PPE.

5.1.5. Are the PPE requirements for tasks clearly defined? (Yes/No/Not Seen)

Documented guidance relating to the use of equipment for specific tasks should be provided, preferably in the form of a matrix.

Working areas should have clear signs indicating PPE requirements.

5.1.6. Are personnel using PPE as required? (Yes/No/Not Seen)

5.1.7. Are regular safety meetings held, are the minutes recorded and does the operator provide shore management responses? (Yes/No/Not Seen/Not Applicable)

Note: Safety meetings are intended to permit discussion among the vessel/unit's officers and ratings where these relate to safety. Safety meetings should not be used for the purposes of instruction or training.

5.1.8. Does the vessel/unit have documented procedures for Man Overboard scenarios? (Yes/No/Not Seen)

Check arrangements for raising the alarm and for deploying flotation and recovery equipment.

5.1.9. Is there a procedure for the reporting, investigation and close-out of accidents, incidents, non-conformities and near misses? (Yes/No/Not Seen)

Note: Port state inspection deficiencies should be recorded as non-conformities.

5.1.10. Are smoking restrictions in place and are they being adhered to? (Yes/No/Not Seen)

Restrictions should include specific controls when the vessel/unit is in the 500 m/ safety zone.

5.1.11. Is there an effective inspection and testing programme in place to ensure that all portable electrical equipment used on board is maintained in a satisfactory condition? (Yes/No/Not Seen)

Reference: IEE Code of Practice for In-service Inspection and Testing of Electrical Equipment.

5.1.12. Is all loose gear on deck, in stores and in internal spaces properly secured? (Yes/No/Not Seen)

5.1.13. Does the safety management system address the control of hazardous substances used on board the vessel/unit? (Yes/No/Not Seen/Not Applicable)

This to include the handling, storage and disposal of materials such as lithium batteries, radioactive sources and biocides, together with appropriate formal training and qualification.

2. Medical

5.2.1. Is the hospital clean and tidy and ready for immediate use? (Yes/No/Not Seen/Not Applicable)

Check that the space is not being used for storage or alternative accommodation.

5.2.2. Is an alarm system fitted in the hospital and is it regularly tested? (Yes/No/Not Seen/Not Applicable)

5.2.3. Is an officer designated as the dedicated officer to provide medical care on board? (Yes/No/Not Seen/Not Applicable)

State which officer is designated.

5.2.4. Is there a system for verifying and checking medical stores? (Yes/No/Not Seen/Not Applicable)

Record date last checked and by whom.

5.2.5. Are first aid kits readily available and subjected to regular inspection to confirm their contents? (Yes/No/Not Seen/Not Applicable)

5.2.6. If cardiopulmonary resuscitation (CPR) equipment, including oxygen resuscitators and defibrillators is carried, is it in good condition and regularly tested? (Yes/No/Not Seen/Not Applicable)

5.2.7. Are personnel trained in the proper use of CPR equipment? (Yes/No/Not Seen/Not Applicable)

Check training and medical records

5.2.8. Are tests undertaken of the potable water system and is regular maintenance carried out and recorded? (Yes/No/Not Seen/Not Applicable)

Check that documented procedures are in place and records are maintained.

May include UV treatment and/or super chlorination.

3. Management of change

5.3.1. Is there a documented procedure in place for the management of change? (Yes/No/Not Seen)

The procedure should apply to work arising from temporary and permanent changes to organisation, personnel, systems, process, procedures, equipment, products, materials or substances, and laws and regulations. Work should not proceed unless a Management of Change process is completed which should include, as applicable:

- a risk assessment conducted by all impacted by the change
- development of a work plan that clearly specifies the timescale for the change and any controls
- measures to be implemented regarding:
 - equipment, facilities and process
 - operations, maintenance, inspection procedures
 - training, personnel and communications
 - documentation
- authorisation of the work plan by the responsible person(s) through to its completion

5.3.2. Is there evidence to demonstrate that the MoC process is being properly applied? (Yes/No/Not Seen)

For example, the addition or removal of vessel or contractor equipment and related changes to procedures.

5.3.3. If any equipment required by operations is retro-fitted or temporarily installed, is there a formal process for assessing the integrity of connections to the vessel/unit's systems? (Yes/No/Not Seen/Not Applicable)

May include the requirement for Class approval.

Vessel/unit systems could include hydraulic, electrical, air, water, drainage and safety systems, such as fire detection.

4. Drills, training and familiarisation

5.4.1. Is there a procedure for the safety induction of new personnel, including contractors? (Yes/No/Not Seen)

On-board training in the use of life-saving appliances, including survival craft equipment and in the use of the vessel/unit's fire extinguishing appliances shall be given as soon as possible after a person joins a vessel/unit.

5.4.2. Are emergency drills being carried out regularly? (Yes/No/Not Seen)

Lifeboat and fire drills should be carried as required by the flag State.

Check that all personnel on board are required to routinely participate in drills.

Note: Emergency procedures should at least include collision, grounding, flooding, heavy weather damage, structural failure, fire, explosion, gas or toxic vapour release, critical machinery/equipment failure, re-start after partial or total power failure, rescue from enclosed spaces, serious injury and helicopter operations.

5.4.3. Is regular training in the use of life-saving equipment being undertaken and are appropriate records maintained for each person on board? (Yes/No/Not Seen)

All personnel shall be given instructions which shall include but not necessarily be limited to:

- use of lifejackets and thermal protective aids;
- launching and operation of survival craft;
- problems of hypothermia, first-aid treatment for hypothermia and other appropriate first-aid procedures;
- special instructions necessary for use of the vessel/unit's life-saving appliances in severe weather and severe sea conditions.

5.4.4. Are 'grab bags' available in cabins? (Yes/No/Not Seen/Not Applicable)

Containing, for example, smokehoods, torch, gloves etc

5.4.5. Are pollution clean-up drills held in line with vessel SOPEP or SMPEP requirements and are there records? (Yes/No/Not Seen/Not Applicable)

Notes: Drills in accordance with the requirements of the SOPEP or SMPEP should be held at regular intervals.
On vessels/units carrying noxious liquids, drills should also be regularly carried out in dealing with chemical spills.

5. Ship security

5.5.1. If the vessel/unit is required to have an approved Ships Security Plan (SSP), does it meet ISPS requirements? (Yes/No/Not Seen/Not Applicable)

5.5.2. If vessel/unit has an approved SSP, has a ship security officer been designated? (Yes/No/Not Seen/Not Applicable)

Check that the ship security officer has received adequate training.

5.5.3. If the vessel/unit is NOT required to have an approved Ships Security Plan (SSP) because of vessel/unit's tonnage or trading area, are there Security Procedures in place? (Yes/No/Not Seen/Not Applicable)

5.5.4. Is an adequate deck watch being maintained to prevent unauthorised access? (Yes/No/Not Seen/Not Applicable)

Note: The deck watch should ensure that access to the vessel/unit is denied to all unauthorised persons.

6. Control of work

5.6.1. Does the vessel/unit operate a documented permit to work (PTW) system? (Yes/No/Not Seen)

A permit to work system should:

- cover all areas of the vessel/unit
- address vessel/unit crew and contractor work scopes
- define the scope of work
- identify hazards and assess risk
- establish control measures to eliminate or mitigate hazards
- link the work to other associated work permits or simultaneous operations
- be authorised by the responsible person(s)
- communicate the above information to all involved in the work
- ensure adequate control over the return to normal operations

The system should cover, as a minimum, the following activities:

- hot work
- confined space entry
- hazardous tasks
- work involving high voltages
- working at height and over the side
- Lock Out/Tag Out processes
- the need for multiple permits.

5.6.2. Does the PTW system specify roles and responsibilities? (Yes/No/Not Seen)

e.g. Performing authority, Area Authority, Isolating Authority, Gas Tester, Fire Watch and Enclosed Space standby

5.6.3. Is there a register recording permits issued and isolations performed.? (Yes/No/Not Seen)

As best practice the register should record the permit number, area of work, summary of task, date/ time permit is issued, revalidated and finally cancelled on completion of work.

For isolations, the register should record the isolation certificate number, summary of equipment isolated date/ time of issue and final cancellation.

5.6.4. Does the PTW system specify when shore management approval is required prior to work being carried out? (Yes/No/Not Seen)

The system should require company management approval for higher risk activities, such as hot work in identified hazardous areas

5.6.5. Are the period of validity and requirements for revalidation specified on the permit? (Yes/No/Not Seen)

Best practice limits a permit's validity to specified individuals on a single shift without formal revalidation.

5.6.6. Do personnel receive formal training in the use of the PTW system? (Yes/No/Not Seen)

Training to include specific training on an individual's roles and responsibilities.

5.6.7. Does the PTW system include an audit process? (Yes/No/Not Seen)

Examples are audits by Safety Officer and Master/OIM as well as those conducted by shore management representatives during vessel / unit visits. Check that there is an effective process of monitoring permit compliance on day-to-day basis.

5.6.8. Does the PTW or SMS include a "Stop the Job" policy or statement.. (Yes/No/Not Seen)

The policy or statement should develop and encourage a "Stop the job" culture if anyone feels unsafe or uncertain about any aspect of a task or operation

5.6.9. Does the PTW system include an effective isolation (Lock Out/Tag Out) process? (Yes/No/Not Seen)

Any work on energy systems - mechanical, electrical, process, hydraulic and others - should not proceed unless:

- the method of isolation and discharge of stored energy are agreed and executed by a competent person(s)
- any stored energy is discharged
- a system of locks and tags is utilised at isolation points
- a test is conducted to ensure the isolation is effective
- isolation effectiveness is periodically monitored (is there evidence of positive isolation?)

Check also if a long-term isolation record is maintained and if there is evidence of a policy for the temporary re-instatement of systems.

5.6.10. Are effective procedures in place to ensure safe work on high voltage systems and do they address appropriate access arrangements?

(Yes/No/Not Seen/Not Applicable)

High Voltage' is generally deemed to be >1000 volts (or less if company specifies).

5.6.11. If the vessel/unit has high voltage equipment, are staff suitably trained and been deemed competent to perform maintenance on it?

(Yes/No/Not Seen/Not Applicable)

5.6.12. Are there specific procedures in place for any hot work on board? (Yes/No/Not Seen)

Hot work' is defined as any work involving sources of ignition or temperatures sufficiently high to cause the ignition of a flammable gas mixture. In conducting hot work:

- the workspace and bilges shall be clean, dry and free of oil
- the vessel/unit should be outside the 500m or safety zone of an installation
- the workspace and enclosed spaces should be tested immediately prior to starting the Hot Work and shown to have an LEL of less than 1 percent
- all meters used shall be properly calibrated and their function tested just prior to being used
- the atmosphere should be monitored and ventilated throughout the hot work
- work pieces should be clamped into position and not held by hand
- fire resistant blankets should be used to shield other areas and prevent sparks from falling to lower levels
- fire hoses should be rigged and charged with water at all times
- a trained fire watch should be continually in attendance
- if outside machinery spaces/workshops, all cargo operations and oil transfers should be stopped
- if multiple repairs are to be carried out in different locations, each job should be planned and executed as an individual and separate repair
- all other work must be considered

Gas testers should be trained and deemed competent.

A hotwork permit should cover the requirements for a fire watch and fire watchers should be trained and deemed competent. The fire watch should continue until there is no further danger.

Best practice is for hot work to stop well before a permit is due to expire to allow the fire watch to continue under its control.

5.6.13. Are users of welding equipment appropriately trained and qualified? (Yes/No/Not Seen/Not Applicable)

5.6.14. If electric welding equipment is provided, is it in good order, inspected regularly and are written safety guidelines available on site? (Yes/No/Not Seen/Not Applicable)

Welding and other equipment used for hot work should be carefully inspected before each occasion of use to ensure that it is in good condition. Where required, it must be correctly earthed. Special attention must be paid when using electric arc equipment to ensure that:

- electrical supply connections are made in a gas free space.
- existing supply wiring is adequate to carry the electrical current demand without overloading, causing heating.
- insulation of flexible electric cables is in good condition.
- the cable route to the work site is the safest possible, only passing over gas free or inerted spaces.
- the welding return lead should be connected as near as practicable to the welding arc; metal rails, pipes and frames should not be used as part of the welding circuit unless they are a part of the work piece itself.

5.6.15. If gas welding and burning equipment is provided, is it inspected regularly and in good order? (Yes/No/Not Seen/Not Applicable)

Check records of inspection.

Confirm that flashback arrestors are fitted and in good order.

5.6.16. Are spare oxygen and acetylene cylinders stored apart in a dedicated storage and is the storage in a clearly marked, well-ventilated position outside the accommodation and machinery spaces? (Yes/No/Not Seen/Not Applicable)

Notes: Oxygen will not burn or explode, it only supports combustion; however, a small amount of excess oxygen will allow materials which are not normally combustible to burn with ferocity. Industrial oxygen cylinders are painted blue. Acetylene is 92.3% carbon and 7.7% hydrogen, is lighter than air and is highly flammable with a LEL of 2.5%. Acetylene cylinders are painted maroon.

Oxygen and Acetylene should be kept in separate compartments except in the case of the cylinders that are in use, which may be stored in the same compartment. Cylinders should be stowed away from heat sources and should not be in heavy traffic areas to prevent accidental knocking over or damage from passing or falling objects. Valve caps should remain on cylinders not connected for use. Full and empty cylinders should be segregated. Cylinders should be stored with the valve end up. Storage areas should be free of combustible material and not exposed to salt or other corrosive chemicals.

Check whether there is a procedure in place to verify the contents of gas cylinders.

5.6.17. Are there procedures in place covering the use of portable electrical equipment on deck? (Yes/No/Not Seen/Not Applicable)

Supply voltage to portable equipment should be limited to a maximum of 110 V. Procedure should also include controls on the use of wandering leads and their inspection and maintenance requirements.

5.6.18. Are all spaces that are classed as 'enclosed spaces' identified and clearly marked. (Yes/No/Not Seen/Not Applicable)

All spaces not normally ventilated should be considered as 'enclosed spaces'.

5.6.19. Are there specific procedures in place for enclosed space entry? (Yes/No/Not Seen/Not Applicable)

An enclosed space is any enclosed area that:

- is large enough for personnel to enter
- has limited or restricted means of entry
- is not designed for normal or continuous occupancy.

It can be any space of an enclosed nature where there is a risk of death or serious injury from hazardous substances or dangerous conditions (e.g. lack of oxygen, machinery located within the space, etc).

Enclosed spaces include cargo tanks, bulk tanks, ballast tanks, fuel tanks, water tanks, lubricating oil tanks, slop and waste oil tanks, sewage tanks, cofferdams, duct keels, void spaces and trunkings, pipelines or fittings connected to any of these. They also include any other item of machinery or equipment that is not routinely ventilated and entered, such as boilers and main engine crankcases.

Procedures should ensure that no person shall enter any enclosed space unless all other alternatives to entry have been considered and:

- a valid entry permit has been issued (Note: some permit systems may require a work permit in addition to an entry permit for work conducted in an enclosed space).
- Lock Out/Tag Out of pipework and machinery has been completed with fully completed isolation tags and locks in place (as required).
- the work space has been tested and found gas free
- ventilation is maintained throughout entry and the atmosphere is monitored
- adequate lighting, including a back-up source and safe access has been provided.
- during the hazard assessment phase, the vessel/unit's contingency plan for enclosed space rescue should be reviewed to ensure it is appropriate for the specific entry, its contents discussed and the necessary equipment readily available.
- an experienced person should be standing by who is capable of initiating the alarm/response procedure.
- communications procedures have been agreed

5.6.20. Are portable gas and oxygen analysers provided appropriate to the vessel/unit's operations and are they calibrated and in good order? (Yes/No/Not Seen/Not Applicable)

Check calibration records and that tests and inspections are included in the vessel/units planned maintenance system.

Check the availability of span gas on board.

5.6.21. Are personnel onboard trained and competent in the use and calibration of portable oxygen and gas analysers? (Yes/No/Not Seen/Not Applicable)

Records should be maintained.

5.6.22. Are there specific procedures covering working at height or overside work? (Yes/No/Not Seen)

A permit may be required, for example, when any worker is:

- exposed to a possible fall of two metres or more
- working near an exposed edge
- working outside of the vessel/units side railings
- working over the vessel/unit's side
- using scaffolding

7. Lifting equipment

5.7.1. Are up to date records maintained for the regular inspection, maintenance and testing of all lifting devices? (Yes/No/Not Seen/Not Applicable)

e.g. chain register/ lifting appliance register, planned maintenance system, etc.

Note: Lifting devices include:

- Pedestal cranes
 - Mobile cranes
 - Overhead gantry cranes
 - Loose lifting gear – chain hoists, lever hoists, slings, shackles, pendants etc.
 - Wire line masts
 - Draw works and travelling block
 - Lifts for persons or goods
 - Abseiling equipment
 - Sling-sets attached to containers or pieces of equipment
 - Runway beams and pad eyes to which lifting equipment is anchored or fixed
 - Emergency escape equipment found on offshore installations such as lifeboats (including any davits, winches, ropes, etc.) and Donuts.
- Periodic inspection should be carried out in accordance with the relevant legislation and such inspections may be carried out by third parties. All equipment, which requires thorough examination should have been identified.

Prior to using lifting equipment for the first time a thorough examination should be carried out, unless the equipment has not been used before and is not more than 12 months old.

A thorough examination must be carried out if the safety of the lifting equipment is dependant upon installation or assembly conditions.

All lifting equipment deteriorates in use and therefore a thorough examination must be carried out.

Examples of thorough examination intervals are:

- every 6 months if the equipment is used for lifting persons
- every 6 months for lifting accessories (slings, shackles etc)
- every 12 months for all other lifting equipment (chain hoists, lever hoists etc)

A thorough examination should also be carried out following exceptional circumstances which may have jeopardised the safety of the equipment, for example, following an overload or change out of a major load path item.

In addition to thorough examinations, where user risks have been identified inspections should be carried out. The inspection should include visual checks and function tests and be carried out by persons competent to do so.

5.7.2. Is an inspection and maintenance programme in place for other lifting equipment such as wire or webbing slings, shackles, eyebolts etc?

(Yes/No/Not Seen/Not Applicable)

5.7.3. Are test certificates available onboard for all items of loose lifting equipment including wire or webbing slings, shackles, eyebolts, etc?

(Yes/No/Not Seen/Not Applicable)

Throughout the life of any piece of lifting equipment it must be accompanied by a valid certificate to show that it has been manufactured properly and, subsequently received thorough examination, to ensure continued integrity and fitness for safe use.

For small items of equipment such as small shackles, batch certificates may be issued.

5.7.4. Are safety devices associated with lifting appliances fully operational? (Yes/No/Not Seen/Not Applicable)

e.g. emergency stops, load and overload indicators, etc

5.7.5. Are cranes, derricks, pad eyes and other securing points clearly marked with their SWL? (Yes/No/Not Seen)

Safe Working Load (SWL) – the maximum load that the equipment may safely lift.

If it is not possible to mark the equipment with the SWL, a coding system or labels may be used.

If the SWL is dependent upon the configuration of the equipment, the SWL for each configuration should either be marked on the equipment or the information kept with the equipment where it is readily available to the operator, for example load-radius charts.

Where the SWL changes with the operating radius of the equipment, a load-limiting device may need to be fitted to inhibit the equipment and provide visual and/or audible warnings.

Any structural element of a piece of lifting equipment which can be separated from the equipment (boom section, slew ring, etc.) should be marked to indicate the equipment of which it is a part.

Where a number of accessories are brought together and not dismantled, for example a spreader beam with slings and shackles, the assembly should be marked to indicate its safety characteristics.

Lifting equipment and accessories should be marked with any relevant safety information such as the thickness of plates, which may be lifted with a plate clamp.

Lifting equipment designed for lifting persons should be marked as such and the carrier should display the SWL and maximum number of persons, which may be carried.

5.7.6. Are all items of lifting gear marked with a unique identification? (Yes/No/Not Seen/Not Applicable)

The equipment should be hard-stamped - e.g. ferrules on wire slings: affixed with a metal plate – e.g. chain hoist; or painted onto the equipment – e.g. runway beams.

5.7.7. Is a colour-coding or alternative system in use to identify inspected lifting equipment? (Yes/No/Not Seen/Not Applicable)

Check that it is being adhered to, i.e. no evidence of wrong colour/non-coded equipment in use, that non-coded/wrong colour equipment is segregated and access to same is denied.

Where there is more than one winch in a drilling derrick it may be possible for a winch, which has not been designated for man-riding, to be used for lifting of persons. In such a case all winches shall be clearly marked as either being suitable for lifting of persons or not.

5.7.8. Is there a programme for routine testing, i.e. start-up, daily, weekly and monthly checks of lifting equipment? (Yes/No/Not Seen/Not Applicable)

Including the use of check lists

5.7.9. Is there a procedure requiring that all lifting operations are properly planned? (Yes/No/Not Seen/Not Applicable)

The plan will need to address the risks identified during a risk assessment and should identify all resources, procedures and responsibilities necessary for safe operation.

The degree of planning will vary considerably depending on the type of lifting equipment and complexity of the lifting operation and degree of risk involved.

There are two elements to the plan: the suitability of the lifting equipment and the individual lifting operation to be performed.

As a means of minimising risk, the plan should consider the following areas:

- working under suspended loads
- breakdown in communication during blind lifting
- attaching/detaching the load
- environment and location
- proximity hazards
- lifting persons with non-dedicated equipment
- overloading
- pre-use checks by the operator
- deterioration in the condition of lifting accessories
- the experience, competence and training of all associated personnel.

Following a risk assessment and preparation of a standard instruction or procedure, the person using the equipment can normally plan routine lifts on an individual basis.

A routine plan should be reviewed on a regular basis to ensure that it remains valid.

For any lifting operation it is necessary to:

- (a) ensure that a risk assessment is in place
- (b) select suitable equipment for the range of tasks
- (c) plan the individual lifting operation

Particular responsibilities are placed on the deck crew and crane operator to ensure that radio communication is maintained, especially during blind lifting.

Lifts utilising cranes, hoists, or other mechanical lifting devices should not commence unless:

- an assessment of the lift has been completed and the lift method and equipment has been determined by a competent person(s)
- operators of powered lifting devices are trained and certified for that equipment
- rigging of the load is carried out by a competent person(s)
- lifting devices and equipment have been certified for use within the last 12 months (at a minimum)
- the load does not exceed dynamic and/or static capacities of the lifting equipment
- any safety devices installed on lifting equipment are operational
- all lifting devices and equipment have been visually examined before each lift by a competent person(s)

5.7.10. Does the vessel/unit have a system in place for the quarantine of damaged or uncertified lifting equipment? (Yes/No/Not Seen/Not Applicable)

5.7.11. Is the vessel/unit equipped with service cranes covering all anticipated operations? (Yes/No/Not Seen/Not Applicable)

Located to minimise blind sectors.

5.7.12. Are any personnel elevators (lifts) onboard the vessel included in the vessel/unit's PMS? (Yes/No/Not Seen/Not Applicable)

8. Offshore personnel transfer

5.8.1. Does the vessel/unit have documented personnel transfer and manriding procedures? (Yes/No/Not Seen/Not Applicable)

A risk assessment should be carried out to confirm that the equipment can be used safely.

- A means of communication must be provided between the passenger and the lifting equipment operator. May be hand signals but radio communication is preferred.
- The equipment must be manned at all times during person-lifting operations.
- Reliable means of rescue available in the event of equipment failure.
- Appropriate supervision is made available for the operations.

If a crane is to be used for lifting persons then the following must be in place:

- Free-fall capability lock-out
- Hoisting and lowering limiters

- Rated capacity indicator and limiter
- Schedule of daily inspections of the crane or winch and carrier by a competent person
- Adequate instruction for all persons involved – passenger, operator, supervisor, etc

5.8.2. Are all personnel transfer and manriding baskets subjected to an inspection and certification regime? (Yes/No/Not Seen/Not Applicable)

Sight certification and inspection records.

5.8.3. Are all personnel involved in lifting/man riding operations suitably trained and deemed competent? (Yes/No/Not Seen/Not Applicable)

e.g. the competent person planning lifting operations, offshore crane driver, winch operators, slingers and banksmen.

5.8.4. Where fitted, is the offshore personnel gangway certified and subject to an inspection programme? (Yes/No/Not Seen/Not Applicable)

5.8.5. Is there a formal check system for confirming who crosses the gangway, and is there an effective back up check system to ensure discrepancies are raised and addressed? (Yes/No/Not Seen/Not Applicable)

All procedures/checks should be positive action type, not a default system. A secondary check process should also be in place as a back-up. The Inspector should make an Observation if positive and secondary systems are not effectively operated.

5.8.6. If the gangway is stabilised, does the control function use a dedicated crew? (Yes/No/Not Seen/Not Applicable)

Inspector should make an Observation if Marine Control Room staff are expected to control gangway, DP systems and mooring winches concurrently

9. Life saving appliances

5.9.1. Are vessel/unit-specific life-saving equipment training manuals available? (Yes/No/Not Seen)

A training manual shall be provided in each crew mess room and recreation room, or in each cabin. (SOLAS III/35.2)

The training manual shall contain instructions and information, in easily understood terms illustrated wherever possible, on the life-saving appliances provided in the vessel/unit and on the best methods of survival. Any part of such information may be provided in the form of audio-visual aids in lieu of the manual. The following shall be explained in detail:

- donning of lifejackets, immersion suits and anti-exposure suits;
- muster at assigned stations;
- boarding, launching and clearing the survival craft and rescue boats;
- method of launching from within survival craft;
- release from launching appliances;
- illumination in launching areas;
- use of all survival equipment;
- with the assistance of illustrations, the use of radio life-saving appliances;
- use of drogues;
- use of engine and accessories;
- recovery of survival craft and rescue boats, including stowage and securing;
- hazards of exposure and the need for warm clothing;
- best use of survival craft facilities in order to survive;
- methods of retrieval, including the use of helicopter gear;
- all other functions contained in the muster list and emergency instructions; and
- instructions for repair of the life saving appliances. (SOLAS III/35.3)

5.9.2. Are vessel/unit-specific life-saving equipment maintenance instructions available and are weekly and monthly inspections being carried out? (Yes/No/Not Seen/Not Applicable)

The following tests and inspections shall be carried out weekly and a report of the inspection shall be entered in the log-book:

- all survival craft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use. The inspection shall include, but is not limited to, the condition of hooks, their attachment to the lifeboat and the on-load release gear being properly and completely reset;
- all engines in lifeboats and rescue boats shall be run for a total period of not less than 3 minutes, provided the ambient temperature is above the minimum temperature required for starting and running the engine. During this period of time, it should be demonstrated that the gearbox and gearbox train are engaging satisfactorily. If the special characteristics of an outboard motor fitted to a rescue boat would not allow it to be run other than with its propeller submerged for a period of 3 minutes, it should be run for such a period as prescribed in the manufacturer's handbook. In special cases, the Administration may waive this requirement for ships constructed before 1 July 1986;
- lifeboats, except free-fall lifeboats, on cargo ships shall be moved from their stowed position, without any persons on board, to the extent necessary to demonstrate satisfactory operation of launching appliances, if weather and sea conditions so allow;
- and the general emergency alarm shall be tested. (SOLAS III/20.6)

All lifeboats, except free-fall lifeboats, shall be turned out from their stowed position, without any persons on board if weather and sea conditions so allow. (SOLAS III/20.7.1)

Monthly inspections. Inspection of the life-saving appliances, including lifeboat equipment, shall be carried out monthly using the checklist required by regulation 36.1 to ensure that they are complete and in good order. A report of the inspection shall be entered in the log-book. (SOLAS III/20.7.2)

Instructions for on-board maintenance shall be easily understood, illustrated wherever possible and as appropriate, shall include for each appliance:

- a checklist for use when carrying out the monthly inspections required by SOLAS III/20.7.2 and III/36.1;
- maintenance and repair instructions;
- a schedule of periodic maintenance;
- a diagram of lubrication points with the recommended lubricants;
- a list of replaceable parts;
- a list of sources of spare parts; and
- a log for records of inspections and maintenance. (SOLAS III/36)

5.9.3. Are muster lists displayed onboard? (Yes/No/Not Seen/Not Applicable)

Muster lists and emergency instructions shall be exhibited in conspicuous places throughout the vessel/unit including the navigation bridge, engine room and crew accommodation spaces. (SOLAS III/8.3)

The muster list shall show the duties assigned to the different members of the crew including:

- closing of the watertight doors, fire doors, valves, scuppers, side scuttles, portholes and other similar openings in the ship;
- equipping of the survival craft and other life-saving appliances;
- preparation and launching of survival craft;
- general preparations of other life-saving appliances;
- muster of passengers;
- use of communication equipment;
- manning of fire parties assigned to deal with fires; and
- special duties assigned in respect to the use of fire-fighting equipment and installations. (SOLAS III/37.3)

The muster list shall specify which officers are assigned to ensure that life-saving and fire appliances are maintained in good condition and ready for immediate use. (SOLAS III/37.4)

The muster list shall specify substitutes for key persons who may become disabled, taking into account that different emergencies may call for different actions. (SOLAS III/37.5)

The muster list shall be prepared before the vessel/unit proceeds to sea. (SOLAS III/37.7)

5.9.4. If vessel/unit has lifeboats, is there a maintenance and test schedule for lifeboat on-load release gear? (Yes/No/Not Seen/Not Applicable)

Lifeboat on-load release gear shall be:

- maintained in accordance with instructions for on-board maintenance as required by regulation 36;
- subjected to a thorough examination and operational test during the annual surveys required by regulations I/7 and I/8 by properly trained personnel familiar with the system; and
- operationally tested under a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of person and equipment whenever the release gear is overhauled. Such over-hauling and test shall be carried out at least once every five years. (SOLAS III/20.11.2)

Note: Of particular importance in the checking of lifeboats is the on-load release system fitted to enclosed lifeboats and the maintenance routines for them. A high percentage of accidents at sea are attributed to lifeboats and their release systems. Particular attention should be paid to the adherence to manufacturer's maintenance requirements.

5.9.5. If vessel/unit has lifeboats, are the lifeboats, including their equipment and launching mechanisms, in good order? (Yes/No/Not Seen/Not Applicable)

Each survival craft shall be stowed in a state of continuous readiness so that two crew members can carry out preparations for embarkation and launching in less than 5 minutes. (SOLAS III/13.1.3)

Each lifeboat shall be launched with its assigned operating crew aboard and manoeuvred in the water at least once every three months during an abandon ship drill. (SOLAS III/19.3.3.3)

In the case of a lifeboat arranged for free-fall launching, at least once every three months during an abandon ship drill, the crew shall board the lifeboat, properly secure themselves in their seats and commence launch procedures up to, but not including, the actual release of the lifeboat (i.e., the release hook shall not be released). The lifeboat shall then either be free-fall launched with only the required operating crew on board, or lowered into the water by means of the secondary means of launching with or without the operating crew on board. In both cases, the lifeboat shall thereafter be manoeuvred in the water by the operating crew. At intervals of not more than six months, the lifeboat shall either be launched by free fall with only the operating crew on board, or simulated launching shall be carried out in accordance with the guidelines developed by the Organization. (SOLAS III.19.3.3.4)

Emergency lighting for mustering and abandonment shall be tested at each abandon ship drill. (SOLAS III/19.3.3.9)

Falls used in launching shall be inspected periodically (Refer to Measures to prevent accidents with lifeboats (MSC.1/Circ.1206) with special regard for areas passing through sheaves, and renewed when necessary due to deterioration of the falls or at intervals of not more than 5 years, whichever is the earlier. (SOLAS III/20.4.1)

Each free-fall lifeboat shall be fitted with a release system which shall be designed to test the release system without launching the lifeboat. (LSA Code IV/4.7.6.4)

Each lifeboat shall be clearly marked with the number of persons for which the lifeboat is approved and the name and port of registry. Means of identifying the ship to which the lifeboat belongs and the number of the lifeboat shall be marked in such a way that they are visible from above. (LSA Code IV/4.4.9)

Notes: It is very important to check the lifting hooks and their associated structure, in particular the connections to the lifeboat keel. These are occasionally found to be severely wasted.

Lifeboat equipment is detailed in the LSA Code IV/4.4.8 and the general requirements for enclosed lifeboats in the LSA Code IV/4.6, although under SOLAS III/32.3.5 the totally enclosed lifeboats carried on ships constructed before 1st July 1986 need not comply with the requirements of the LSA Code IV/4.6.

Amendments to SOLAS III/19 (Emergency training and drills) and 20 (Operational readiness maintenance and inspections) came into force on 1st July 2006. The amendments concern the conditions in which lifeboat emergency training and drills should be conducted and introduce changes to the operational requirements for maintenance, weekly and monthly inspections so as not to require any persons to be on board, and servicing of launching appliances and on-load release gear.

5.9.6. Is there a procedure in place for the periodic inspection of davits, fall wires and brake mechanisms? (Yes/No/Not Seen/Not Applicable)

Check the PMS includes these items and addresses the periodic replacement of fall wires.

5.9.7. Are lifeboat (if fitted) and liferaft operating instructions displayed? (Yes/No/Not Seen/Not Applicable)

Posters or signs shall be provided on or in the vicinity of survival craft and their launching controls shall:

- illustrate the purpose of the controls and the procedures for operating the appliance and give relevant instructions or warnings;
- be easily seen under emergency lighting conditions; and
- use symbols in accordance with resolution A.760, as amended by MSC.82. (SOLAS III/9.2)

5.9.8. If vessel/unit has a rescue boat, is the rescue boat, including its equipment and launching arrangement, in good order? (Yes/No/Not Seen/Not Applicable)

Rescue boats shall be stowed in a state of continuous readiness for launching in not more than 5 minutes.(SOLAS III/14.1)

Notes: Rescue boat equipment is detailed in the LSA Code V/5.1.2.2, 3 and 4.

With respect to launching equipment, rescue boats should comply with the requirements of the LSA Code 4.4.7.6 (by LSA Code 5.1.1.1) and either have two release capabilities, one off-load and one on-load, or only one if the rescue boat can only be released when waterborne.

The on-load release shall be:

- protected against accidental or premature use;
- to prevent a premature on-load release, on-load operation of the release mechanism should require a sustained and deliberate action by the operator;
- to prevent an accidental release the mechanical protection (interlock) should only engage when the release mechanism is properly and completely set;
- the release mechanism shall be so designed that crew members in the lifeboat can clearly observe when the release mechanism is properly and completely reset;
- clear operating instructions should be provided with a suitable worded warning notice;
- where a single fall or hook system is used for launching, the above requirements need not apply and a single capability to release the rescue boat only when it is waterborne will be adequate.

5.9.9. Where the vessel/unit is equipped with a fast rescue boat (FRC), is the equipment in good order and regularly maintained? (Yes/No/Not Seen/Not Applicable)

State date of last exercise.

Confirm that the crew are trained and competent in the operation of FRC.

5.9.10. Are liferafts in good order? (Yes/No/Not Seen/Not Applicable)

5.9.11. Are hydrostatic releases, where fitted, correctly attached and in good order? (Yes/No/Not Seen/Not Applicable)

Every liferaft shall be stowed with its painter permanently attached to the ship. (SOLAS III/13.4.1)

Each liferaft or group of liferafts shall be stowed with a float-free arrangement so that each floats free and if inflatable, inflates automatically when the ship sinks. (SOLAS III/13.4.2)

Liferafts shall be so stowed as to permit manual release of one raft or container at a time from their securing arrangements. (SOLAS III/13.4.3)

Note: Some hydrostatic release manufacturers recommend that each liferaft is fitted with its own individual hydrostatic release unit (HRU), to prevent the possibility, where more than one liferaft is utilising the same release, of one of the liferafts breaking the weak link before the second or subsequent liferafts have inflated. Where more than one liferaft is attached to a single HRU, each of the rafts must be fitted with its own weak link. Liferafts stowed in the forward part of the vessel do not require a HRU.

5.9.12. Are survival craft portable VHF radios and Search and Rescue Radar Transponders (SART's) in good order and charged? (Yes/No/Not Seen/Not Applicable)

At least 3 two-way VHF radiotelephone apparatus shall be provided on every cargo ship of 500 gross tonnage and upwards. (SOLAS III/6.2.1.1)

The two-way radiotelephone should be capable of operation on the frequency 156.800 MHz (VHF channel 16) and on at least one additional channel. (Res. A.890/3.1)

The source of energy should be integrated in the equipment and may be replaceable by the user. In addition, provision may be made to operate the equipment using an external source of electrical energy. (Res. A.890/12.1)

Equipment for which the source of energy is intended to be user-replaceable should be provided with a dedicated primary battery for use in the event of a distress situation. This battery should be equipped with a non-replaceable seal to indicate that it has not been used. (Res. A.890/12.2)

Equipment for which the source of energy is intended to be non-user-replaceable should be provided with a primary battery. The portable two-way radiotelephone equipment should be fitted with a non-replaceable seal to indicate that it has not been used. (Res. A.890/12.3)

At least one radar transponder shall be carried on each side of every cargo ship of 500 gross tonnage and upwards. The radar transponders shall be stowed in such locations that they can be rapidly placed in any survival craft (other than the forward liferaft). On ships equipped with free-fall lifeboats, one of the transponders shall be stowed in the free-fall lifeboat and the other located in the immediate vicinity of the navigation bridge so that it can be utilised on board and ready to transfer to any other survival craft. (SOLAS III/6.2.2)

Note: The requirements for survival craft two-way VHF radios are contained in IMO Res. A.809(19).

5.9.13. Are lifebuoys, lights, buoyant lines, quick release mechanisms and self-activating smoke floats in good order? (Yes/No/Not Seen)

Cargo ships shall carry not less than the following numbers of lifebuoys:

- under 100 metres in length – 8;
- between 100 metres and under 150 metres – 10;
- between 150 metres and under 200 metres – 12;
- 200 metres and over – 14. (SOLAS III/32.1.1)

Lifebuoys shall be:

- so distributed as to be readily available on both sides of the ship and as far as practicable on all open decks extending to the ship's side;
- at least one shall be placed in the vicinity of the stern; and
- so stowed as to be capable of being rapidly cast loose and not permanently secured in any way. (SOLAS III/7.1.1)

At least one lifebuoy on each side of the ship shall be fitted with a buoyant line, equal in length to not less than twice the height at which it is stowed above the waterline in the lightest seagoing condition, or 30 metres, whichever is the greater. (SOLAS III/7.1.2)

Not less than one half of the total number of lifebuoys shall be provided with self-igniting lights;

Not less than two of these shall also be provided with lifebuoy self-activating smoke signals capable of quick release from the navigating bridge; Lifebuoys with lights and those with lights and smoke signals shall be distributed equally on both sides of the ship and shall not be the lifebuoys provided with lifelines. (SOLAS III/7.1.3)

Lifebuoys intended to operate the quick-release arrangement provided for the self-activated smoke signals and self-igniting lights shall have a mass sufficient to operate the quick release arrangement. (LSA Code II/2.1.1.7)

5.9.14. Are lifejackets in good order? (Yes/No/Not Seen)

A lifejacket shall be provided for every person on board and, in addition, a sufficient number of lifejackets shall be carried for persons on watch and for use at remotely located survival craft stations. The lifejackets carried for persons on watch should be stowed on the bridge, in the engine control room and at any other manned watch station. (SOLAS III/7.2.1)

The lifejackets used in totally enclosed lifeboats, except free-fall lifeboats, shall not impede entry into the lifeboat or seating including operation of the seat belts in the lifeboat. (SOLAS III/7.2.3)

Lifejackets selected for free-fall lifeboats and the manner in which they are carried or worn, shall not interfere with entry into the lifeboat, occupant safety or operation of the lifeboat. (SOLAS III/7.2.4)

Make an Observation if more than one type of lifejacket is carried on board.

5.9.15. Are lifejacket donning instructions displayed? (Yes/No/Not Seen)

Ensure instructions include all types of lifejacket carried on board.

5.9.16. If vessel is outfitted with immersion suits, are the immersion suits in a satisfactory condition? (Yes/No/Not Seen/Not Applicable)

An immersion suit or an anti-exposure suit, of an appropriate size, shall be provided for every person assigned to crew the rescue boat. If the ship is constantly engaged in warm climates where, in the opinion of the Administration thermal protection is unnecessary, this protective clothing need not be carried (SOLAS III/7.3)

An immersion suit complying with the requirements of section 2.3 of the LSA Code shall be provided for every person on board the ship. These immersion suits need not be required if the ship is constantly engaged on voyages in warm climates where, in the opinion of the Administration, immersion suits are unnecessary. (SOLAS III/32.3.2)

If a ship has any watch or work stations which are located remotely from the place or places where immersion suits are normally stowed, additional immersion suits shall be provided at these locations for the number of persons normally on watch or working at those locations at any time. (SOLAS III/32.3.3)

5.9.17. Are pyrotechnics, including line throwing apparatus, in date and in good order? (Yes/No/Not Seen/Not Applicable)

Not less than 12 rocket parachute flares shall be carried and be stowed on or near the navigation bridge. (SOLAS III/6.3)

A line throwing appliance complying with the requirements of section 7.1 of the Code shall be provided. (SOLAS III/18)

An illustrated table describing the life-saving signals shall be readily available to the officer of the watch. (SOLAS V/29)

5.9.18. Are the locations of life saving appliances marked with IMO symbols? (Yes/No/Not Seen/Not Applicable)

Containers, brackets, racks and other similar stowage locations for life-saving equipment shall be marked with symbols in accordance with IMO Res. A.760(18) indicating the devices stowed in that location for that purpose. If more than one device is stowed in that location, the number of devices shall also be indicated. (SOLAS III/20.10)

10. Fire-fighting

5.10.1. Are vessel/unit-specific fire training manuals available? (Yes/No/Not Seen/Not Applicable)

The training manual shall explain the following in detail:

- general fire safety practice and precautions related to the dangers of smoking, electrical hazards, flammable liquids and similar common shipboard hazards;
- general instructions on fire-fighting activities and fire-fighting procedures, including procedures for notification of a fire and use of manually operated

- call points;
- meanings of the vessel/unit's alarms;
- operation and use of fire-fighting systems and appliances;
- operation and use of fire doors;
- operation and use of fire and smoke dampers; and
- escape systems and appliances. (SOLAS II-2/15.2.3.4)

A training manual shall be provided in each crew mess room and recreation room, or in each crew cabin. (SOLAS II-2/15.2.3.1)

The training manual shall be written in the working language of the ship. (SOLAS II-2/15.2.3.2)

5.10.2. Are vessel/unit-specific fire safety operational booklets available? (Yes/No/Not Seen/Not Applicable)

The fire safety operational booklet shall contain the necessary information and instructions for the safe operation of the ship and cargo handling operations in relation to fire safety. The booklet shall include information concerning the crew's responsibilities for the general fire safety of the ship while loading and discharging cargo and while under way. The booklet shall also provide reference to the pertinent fire-fighting and emergency cargo handling instructions contained in the IBC Code, the IGC Code and the IMDG Code, as appropriate. (SOLAS II-2/16.2.1)

The fire safety operational booklet shall also include provisions for preventing fire spread to the cargo area due to ignition of flammable vapours and include procedures for cargo tank gas-purging and/or gas-freeing. (SOLAS II-2/16.3.1)

The fire safety operational booklet shall be provided in each crew mess room and recreation room, or in each crew cabin. (SOLAS II-2/16.2.2)

The booklet shall be written in the working language of the ship. (SOLAS II-2/16.2.3)

The booklet may be combined with the fire training manual. (SOLAS II-2/16.2.4)

5.10.3. Are vessel/unit-specific fire fighting equipment maintenance instructions available and are weekly and monthly inspections being carried out? (Yes/No/Not Seen/Not Applicable)

Maintenance, testing and inspections shall be carried out based on the guidelines in MSC/Circ.850

The maintenance plan shall be kept on board the ship and shall be available for inspection. (SOLAS II-2/14.2.2.2)

The maintenance plan shall include at least the following fire protection systems and fire fighting systems and appliances, where installed:

- fire mains, fire pumps and hydrants, hoses, nozzles and international shore connections;
- fixed fire detection and fire alarm systems;
- fixed fire extinguishing systems and other fire extinguishing appliances;
- automatic sprinkler, fire detection and fire alarm systems;
- ventilation systems, including fire and smoke dampers, fans and their controls;
- emergency shutdown of fuel supply;
- fire doors, including their controls;
- general emergency alarm systems;
- emergency escape breathing devices;
- portable fire extinguishers, including spare charges;
- fire fighter's-outfits;
- inert gas systems;
- deck foam systems;
- fire safety arrangements in cargo pump rooms; and
- flammable gas detectors.

(SOLAS II-2/14.2.2.3) and 14.4)

The maintenance programme may be computer-based. (SOLAS II-2/14.2.2.4)

5.10.4. Are records available to show that samples of foam compound have been tested at regular intervals? (Yes/No/Not Seen/Not Applicable)

The first periodical control of medium expansion foam concentrates stored on board should be performed after a period of 3 years and, after that, every year. (MSC/Circ.798/5.1)

A record of the age of the foam concentrates and of subsequent controls should be kept on board. (MSC/Circ.798/5.2)

5.10.5. Is a fire control plan exhibited within the accommodation, is a copy available externally and is equipment correctly marked on it? (Yes/No/Not Seen/Not Applicable)

Note: The requirements for fire plans are contained in SOLAS II-2/15.2.4. IMO Resolution A.654(16) recommends the symbols to be used on fire control plans.

5.10.6. If vessel/unit is classified to carry Methanol or other alcohol based substances, is the vessel equipped with an appropriate foam extinguishing system? (Yes/No/Not Seen/Not Applicable)

5.10.7. Are fire mains, pumps, hoses and nozzles in good order and available for immediate use? (Yes/No/Not Seen/Not Applicable)

Check that isolating valves in fire and foam system lines are clearly marked and in good order.

5.10.8. Is the International shore fire connection readily available externally and is the location clearly marked? (Yes/No/Not Seen/Not Applicable)

The connection shall be of steel or other suitable material. The connection shall be kept aboard the vessel/unit together with a gasket of any material suitable, with four 16 mm bolts, 50 mm in length and eight washers. (FSS Code 2.2)

If fixed on a vessel/unit, the connection should be accessible from both sides of the vessel/unit and its location should be clearly marked. The shore

connection should be ready for use whenever a vessel/unit is in port.

5.10.9. Are fixed fire detection and alarm systems, if fitted, in good order and tested regularly? (Yes/No/Not Seen/Not Applicable)

Notes: There should be a procedure for whenever a zone of a fire detection system is isolated to ensure that relevant personnel are aware of the isolation and the reason for it and to ensure that the zone is reinstated as soon as possible.

The engine room should not be operated unmanned with any zone in the space isolated.

Spaces not covered by a fire detection system should be covered by regular fire patrols. Such patrols should not utilise the bridge lookout during the hours of darkness.

5.10.10. Are fixed fire extinguishing systems, where fitted, in good order and are clear operating instructions posted? (Yes/No/Not Seen/Not Applicable)

Check that relevant crew are familiar with operating procedures.

5.10.11. Is the emergency fire pump in full operational condition and are starting instructions clearly displayed? (Yes/No/Not Seen/Not Applicable)

Consistent with safety and without interfering with the vessel/unit's operations, request to witness the starting and operation of the emergency fire pump.

If a priming system has been fitted to the emergency fire pump, it must be class approved.

5.10.12. Are portable fire extinguishers in good order with operating instructions clearly marked? (Yes/No/Not Seen)

Each extinguisher should be clearly marked with the following minimum information:

- name of the manufacturer;
- type of fire for which the extinguisher is suitable;
- type and quantity of extinguishing medium;
- approval details;
- instructions for use and recharge (it is recommended that operating instructions be given in pictorial form);
- year of manufacture;
- temperature range over which the extinguisher will operate satisfactorily; and
- test pressure. (FSS Code 4 and Res. A.602)

One of the portable fire extinguishers intended for use in any space shall be stowed near the entrance to that space. (SOLAS 2004 II-2/10.3.2.2)

For vessels constructed after 1st July 2002, spare charges shall be provided for 100% of the first ten extinguishers and 50% of the remaining fire extinguishers capable of being recharged on board. Not more than sixty total spare charges are required. Instructions for recharging shall be carried on board. (SOLAS 2004 II-2/10.3.3.1)

For fire extinguishers which cannot be recharged on board, additional portable fire extinguishers of the same quantity, type, capacity and number shall be provided in lieu of spare charges. (SOLAS 2004 II-2/10.3.3.2)

For vessels constructed before 1st July 2002, spare charges shall be provided in accordance with requirements specified by the Administration. (SOLAS 1974 II-2/6.2)

Note: Portable fire extinguishers must be hydrostatically tested every 10 years or lesser period if so required by the Administration. The date of the hydrostatic test must be stamped on the cylinder.

Certain administrations may have their own requirements for the carriage of portable extinguishers and spare charges.

5.10.13. Are firemen's outfits and breathing apparatus in good order, provided with fully charged cylinders and ready for immediate use? (Yes/No/Not Seen/Not Applicable)

A number of spare charges, suitable for use with the apparatus provided, shall be available on board to the satisfaction of the Administration. (SOLAS 74 II-2/17.1.2.2)

Two spare charges shall be provided for each required breathing apparatus.....cargo ships that are equipped with suitably located means for fully recharging the air cylinders free from contamination need carry only one spare charge for each required apparatus. (SOLAS 2004 II-2/10.2.5)

For vessels constructed before 1st July 2002, the breathing apparatus may be either a smoke helmet type, or a self-contained compressed air type. A number of spare charges suitable for use with the apparatus provided shall be available on board to the satisfaction of the Administration. (SOLAS 1974 II-2/17.1.2)

The outfits shall be kept ready for use in an easily accessible location that is permanently and clearly marked and, they shall be stored in widely separated positions. (SOLAS 1974 II-2/17.4 and SOLAS 2004 II-2/10.3.1)

Notes: Although SOLAS recommends 'widely separated positions', fire-fighting training advocates that breathing apparatus should be used by personnel in pairs.

Self-contained breathing apparatus should be checked for condition and satisfactory operation. With the apparatus charged and the cylinder valve closed, the drop in pressure should not be more than 10 bars in one minute. (Manufacturer's instructions)

Annual inspections should be carried out to ensure that the air quality of breathing apparatus air recharging systems is satisfactory. (MSC/Circ.850)

Breathing apparatus shall be a self-contained compressed air-operated breathing apparatus for which the volume of air contained in the cylinders shall be at least 1,200 l, or other self-contained breathing apparatus which shall be capable of functioning for at least 30 min. All air cylinders for breathing apparatus shall be interchangeable. (FSS Code 3.2.1.2)

Notes: Air cylinders should be charged to not less than 10% below full. BA air cylinders should be hydrostatically tested every 5 years or lesser period if so recommended by the manufacturer. (4-Year testing intervals are customary for some composite wound cylinders.) The hydrostatic test date must be stamped on the cylinder.

5.10.14. If fitted, are emergency escape breathing devices (EEBD's) in good order and ready for immediate use? (Yes/No/Not Seen/Not Applicable)

All ships shall carry at least two emergency escape breathing devices within accommodation spaces. (SOLAS II-2/13.3.4.2)

On all ships, within the machinery spaces, emergency escape breathing devices shall be situated ready for use at easily visible places, which can be reached quickly and easily at any time in event of fire. The location of EEBD's shall take into account the layout of the machinery space and the number of persons normally working in the spaces. (SOLAS II-2/13.3.4.1)

Spare emergency escape breathing devices shall be kept on board. (SOLAS II-2/13.3.4.1)

Training in the use of the EEBD should be considered a part of basic safety training. (MSC/Circ.849)

Note: The requirements for EEBD's are contained in Chapter 3/2.2 of the FSS Code and MSC/Circ.849 and among other measures or definitions, stipulate:

- an EEBD is a supplied air or oxygen device only used for escape from a compartment that has a hazardous atmosphere and shall be of an approved type.
- EEBDs shall not be used for fighting fires, entering oxygen deficient voids or tanks, or worn by fire-fighters. In these events, a self-contained breathing apparatus, which is specifically suited for such applications, shall be used.
- the EEBD shall have a service duration of at least 10 min. The EEBD shall include a hood or full face piece, as appropriate, to protect the eyes, nose and mouth during escape.
- hoods and face pieces shall be constructed of flame-resistant materials and include a clear window for viewing.
- an inactivated EEBD shall be capable of being carried hands-free.
- an EEBD, when stored, shall be suitably protected from the environment.
- brief instructions or diagrams clearly illustrating their use shall be clearly printed on the EEBD. The donning procedures shall be quick and easy to allow for situations where there is little time to seek safety from a hazardous atmosphere.
- maintenance requirements, manufacturer's trademark and serial number, shelf life with accompanying manufacture date and name of the approving authority shall be printed on each EEBD.
- all EEBD training units shall be clearly marked.

5.10.15. Are accommodation and ventilation fan emergency stops in good order and clearly marked to indicate the spaces they serve? (Yes/No/Not Seen/Not Applicable)

5.10.16. Are fire flaps in good order and clearly marked to indicate the spaces they serve? (Yes/No/Not Seen/Not Applicable)

5.10.17. If vessel has FiFi notation, is the associated equipment in good order? (Yes/No/Not Seen/Not Applicable)

State notation class.

Check the condition of monitors, pumps, water spray, foam concentrate, etc

On vessels with a FiFi II crew should be aware of potential risks of incorrect use of fire fighting equipment due to high pressure of monitors

11. Access

5.11.1. Is a safe means of access provided, including, where appropriate, the provision of a gangway, accommodation ladder, pilot ladder, safety net, lifebuoy and line? (Yes/No/Not Seen)

Notes: Safety nets should be provided wherever there is a possibility of a person falling over or through the side rails of the gangway and should be rigged to prevent anyone falling between the vessel/unit and the quay. Where the rails provide adequate protection, a safety net might not be necessary.

Regardless of whether the gangway is supplied by vessel or shore, it is the vessel/unit's responsibility to ensure that a safety net is rigged.

If the means of access are considered to be unsafe, then the inspector must not put him/herself at risk by going on board.

5.11.2. Where the vessel/unit is not fitted with a helideck, and Chapter 8.14 is not applicable, does the vessel/unit have a set of procedures/guidance for helicopter winching operations in the event that they may need to be enacted? (Yes/No/Not Seen/Not Applicable)

There should be a plan in place for possible medivac or other abnormal operation involving helicopter transfer of goods or personnel by winch. Factors addressed should include location on deck for winch drop, personnel involved, communications protocol and recommended equipment ref. ICS Guide to Helicopter/Ship Operations.

12. Additional comments

5.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

6. Pollution prevention and environmental management

1. Pollution prevention

6.1.1. Is the Engine Room (Part I) Oil Record Book (ORB) and, if applicable, Part 2, correctly completed? (Yes/No/Not Seen/Not Applicable)

Notes: The IOPP Form A (2.2) indicates whether a vessel is fitted with a 15 ppm oily water separator and 15 ppm oil content meter fitted with an alarm and automatic stopping device. Discharge of bilges or transfer from a bilge holding tank to overboard through this equipment should be recorded in section D of the ORB. Section E should be used ONLY in cases where automatic starting systems that are activated by float switches in bilge wells or bilge holding tanks.

ORB entries should be signed (not initialled) and each completed page should be signed by the Master.

6.1.2. Do the sludge and bilge tanks designated in Form A of the IOPP Certificate and those listed in the Oil Record Book Part I, agree? (Yes/No/Not Seen/Not Applicable)

Notes: Details of bilge and sludge tanks can be obtained from Form A of the IOPP Certificate, although the recording of bilge tanks (section 3.3) is not a MARPOL requirement and is therefore voluntary. Notwithstanding the foregoing, if an engine room bilge tank is used for the purposes of holding engine room residues, this tank and details of its contents must be recorded in the Oil Record Book Part 1.

In Part 1, Section C should be used for the disposal of sludge and other oil residues such as drainage, leakage, exhausted oil etc. and this section should be completed weekly.

Section D (Non-Automatic Discharge) should be compiled for the disposal of bilge water as and when it occurs.

Masters should obtain from the operator of the reception facilities, which includes barges and tank trucks, a receipt or certificate detailing the quantity of tank washings, residues or oily mixtures transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part I, may aid the master of the ship in proving that his ship was not involved in an alleged pollution incident. The receipt or certificate should be kept together with the Oil Record Book Part I.

6.1.3. Is the Oil Record Book free of any pollution incidents or violations? (Yes/No/Not Seen/Not Applicable)

6.1.4. If the disposal of engine room oily water or sludge to a shore facility has taken place, has the event been recorded in the Engine Room Oil Record Book, did the vessel/unit receive a statement or certificate of disposal from the shore facility and did it (Yes/No/Not Seen/Not Applicable)

6.1.5. Are thruster seals free of hydraulic leaks? (Yes/No/Not Seen/Not Applicable)

6.1.6. Are there adequate containment arrangements fitted around hydraulic machinery in case of leaks? (Yes/No/Not Seen/Not Applicable)

6.1.7. Is there evidence that the oily water separator control system and engine room bilge oily water separator/filtering system is maintained in good working order? (Yes/No/Not Seen/Not Applicable)

Check equipment logs and maintenance records.

6.1.8. Are specific warning notices posted to safeguard against the accidental opening of the overboard discharge valve from the oily water separator? (Yes/No/Not Seen/Not Applicable)

Note: The overboard valve should be sealed and provided with a warning notice indicating that the valve should not be opened without the authority of the chief engineer or master. (Industry guidance: 'Oily Water Separators')

2. Shipboard oil and marine pollution emergency plans

6.2.1. Is an approved MARPOL Shipboard Oil Pollution Emergency Plan (SOPEP) or Shipboard Marine Pollution Emergency Plan (SMPEP) provided? (Yes/No/Not Seen/Not Applicable)

Every oil tanker of 150 grt and above and every ship other than an oil tanker of 400 gt and above shall carry on board a shipboard oil pollution emergency plan approved by the Administration. (MARPOL Annex I/37).

The plan shall be written in the working language of the master and officers and shall at least consist of:

- a) the procedure to be followed by the master or other persons having charge of the ship to report an oil pollution incident;
- b) the list of authorities or persons to be contacted in the event of an oil pollution incident;
- c) a detailed description of the action to be taken immediately by persons on board to reduce or control the discharge of oil following the incident; and
- d) the procedures and point of contact on the ship for co-ordinating shipboard action with national and local authorities in combating the pollution. (MARPOL Annex I/37.2)

Every ship of 150 gt and above certified to carry noxious liquid substances in bulk shall carry on board a shipboard marine pollution emergency plan for noxious liquid substances approved by the Administration. (MARPOL Annex II/17)

The plan shall be written in a working language or languages understood by the master and officers and shall at least consist of:

- a) the procedure to be followed by the master or other persons having charge of the ship to report a noxious liquid substances pollution incident;
- b) the list of authorities or persons to be contacted in the event of a noxious liquid substance pollution incident;
- c) a detailed description of the action to be taken immediately by persons on board to reduce or control the discharge of noxious liquid substances following the incident; and
- d) the procedures and point of contact on the ship for co-ordinating shipboard action with national and local authorities in combating the pollution.

(MARPOL Annex II/17.2)

In the case of ships to which regulation 17 of Annex II of the present Convention also applies, such a plan may be combined with the shipboard marine pollution emergency plan for noxious liquid substances required under regulation 17 of Annex II of the present Convention. In this case, the title of such a plan shall be "Shipboard marine pollution emergency plan". (MARPOL Annex I/37.3 and Annex II/17)

Note: The plan is subject to re-approval after a change of management.

6.2.2. Is the IMO Coastal Contact List up to date and is the master aware of port contact procedures? (Yes/No/Not Seen/Not Applicable)

Notes: The IMO Coastal Contact List is published on 31st December and updated on 31st March, 30th June and 30th September each year. This information is published on the IMO web site at www.imo.org. Inspectors must ensure that the current update to the IMO Coastal Contact List has actually been published and sufficient time allowed for the document to be received on board prior to making an Observation.

6.2.3. Is there evidence that the vessel/unit has carried out regular drills and that the contents of the SOPEP/SMPEP Manual have been reviewed? (Yes/No/Not Seen/Not Applicable)

3. Bulk liquid transfers

6.3.1. Is there evidence of a pre-transfer conference being held between the vessel/unit and the receiving facility before the transfer of Bulk Liquids begins? (Yes/No/Not Seen/Not Applicable)

6.3.2. Are spill containment arrangements provided in way of bulk transfer manifolds? (Yes/No/Not Seen/Not Applicable)

If not permanent, comment on temporary arrangements provided.

6.3.3. Are manifold spill containers, if provided, empty and are the drainage arrangements satisfactory? (Yes/No/Not Seen/Not Applicable)

6.3.4. If carried, are the hoses and connections used for the transfer of bulk liquids free of defects? (Yes/No/Not Seen/Not Applicable)

6.3.5. If carried, are all transfer hoses routinely tested? (Yes/No/Not Seen/Not Applicable)

Records to be sighted confirming regular tests for pressure, elongation and conductivity.

6.3.6. Are transfer hoses fitted with lifting saddles and stowed in racks? (Yes/No/Not Seen/Not Applicable)

4. Ballast water management

6.4.1. Does the vessel/unit have an approved ballast water and sediments management plan? (Yes/No/Not Seen/Not Applicable)

Note: The International Convention for the Control and Management of Ships' Ballast Water and Sediments is a new international convention to help prevent the spread of harmful aquatic organisms carried by ships' ballast water, and will require all ships to implement a ballast water and sediments management plan. Some countries are introducing specific requirements for ballast water management and reporting, within their national limits, prior to the Convention coming into force.

6.4.2. Are records being maintained of all ballast water exchanges? (Yes/No/Not Seen/Not Applicable)

5. Waste management

6.5.1. Does the vessel/unit have a garbage management plan and has garbage been handled and disposed of in accordance with MARPOL? (Yes/No/Not Seen/Not Applicable)

Every ship of 400 gross tonnage and above, and every ship which is certified to carry 15 persons or more, shall carry a garbage management plan which the crew shall follow. (MARPOL Annex V/9.2)

Every ship shall display placards which notify the crew of the disposal requirements of garbage. (MARPOL Annex V/9.1.a)

The placards shall be written in the working language of the ship's personnel and, for ships engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the Convention, shall also be in English, French or Spanish. (MARPOL Annex V/9.1.b)

When garbage is mixed with other discharges having different disposal or discharge requirements the more stringent requirements shall apply. (MARPOL Annex V/5.3)

Waste receptacles should be constructed of non-combustible materials with no openings in the sides or bottom. (SOLAS 2004 II-2/4.4.2)

The disposal into the sea of all plastics, including but not limited to synthetic ropes, synthetic fishing nets, plastic garbage bags and incinerator ashes from plastic products which may contain toxic or heavy metal residues, is prohibited. (MARPOL Annex V/3.1(a))

The storage locations for garbage should be carefully selected to ensure that the garbage presents no potential hazard to adjacent spaces. Particular consideration should be given to the storage of garbage that is designated as 'special waste', such as batteries, sensors and fluorescent tubes, to ensure that only compatible materials are stowed together.

6.5.2. Does the Garbage Management Plan include procedures for collecting, storing, processing and disposing of garbage? (Yes/No/Not Seen/Not Applicable)

6.5.3. Has the Garbage Record Book been correctly completed? (Yes/No/Not Seen/Not Applicable)

The Garbage Record Book, whether as a part of the ship's official log-book or otherwise, shall be in the form specified in the appendix to this Annex; (MARPOL Annex V9/3)

(a) each discharge operation, or completed incineration, shall be recorded in the Garbage Record Book and signed for on the date of the incineration or discharge by the officer in charge. Each completed page of the Garbage Record Book shall be signed by the master of the ship. The entries in the Garbage Record Book shall be at least in English, French or Spanish. Where the entries are also made in an official language of the State whose flag the ship is entitled to fly, these entries shall prevail in case of a dispute or discrepancy;

(b) the entry for each incineration or discharge shall include date and time, position of the ship, description of the garbage and the estimated amount incinerated or discharged;

(c) the Garbage Record Book shall be kept on board the ship and in such a place as to be available for inspection in a reasonable time. This document shall be preserved for a period of two years after the last entry is made on the record; (MARPOL Annex V 9/3)

Note: receipts for garbage landed ashore should be retained and filed on board.

6.5.4. Are controls in place to ensure that sewage treatment plant discharges comply with MARPOL or local requirements? (Yes/No/Not Seen/Not Applicable)

Alternatively, holding tank arrangements shall be provided to facilitate disposal ashore.

6. Additional comments

6.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

7. Structural condition

1. General

7.1.1. Is the hull free from visible structural defects that warrant further investigation? (Yes/No/Not Seen)

Inspection of the hull should include checking for any evidence of structural problems including collision/jetty contact damage or distortion from heavy weather.

7.1.2. Are weather decks free from visible structural defects that warrant further investigation? (Yes/No/Not Seen)

Inspection of weather decks should include checking for any evidence of wastage, structural problems including evidence of contact damage or distortion from heavy weather

7.1.3. Where deck sheathing exists, are records available regarding removal of sheathing and checking of deck and sheathing condition? (Yes/No/Not Seen/Not Applicable)

7.1.4. Is the superstructure free from visible structural defects that warrant further investigation? (Yes/No/Not Seen/Not Applicable)

7.1.5. Are internal spaces free from visible structural defects that warrant further investigation? (Yes/No/Not Seen/Not Applicable)

7.1.6. If there has been any significant structural damage to the vessel/unit, have repairs been undertaken to the satisfaction of an attending Class surveyor? (Yes/No/Not Seen/Not Applicable)

Class records should be examined to confirm that class has been involved whenever significant damage has occurred or been repaired.

7.1.7. If the vessel has any through-hull penetrations, are they in good order and subjected to Class approval? (Yes/No/Not Seen/Not Applicable)

State type, number and location

Check that procedures are available for raising and lowering of poles and that the operation is covered by a permit to work.

Check that the planned maintenance system covers the checking and maintenance of gate valves, top plate assembly, watertight doors, bilge alarms and suctions.

2. Stability

7.2.1. Is there a competent person responsible for cargo and ballast operations? (Yes/No/Not Seen)

Calculations should include; operational activities and transits.

Check and comment on any anomalies.

7.2.2. Are adequate stability records maintained on board? (Yes/No/Not Seen)

Calculations should include transits.

Check and comment on any anomalies.

7.2.3. Is an approved stability book available onboard that includes both intact and damage stability scenarios? (Yes/No/Not Seen/Not Applicable)

State approving entity - Class or Flag State.

Some administrations may permit this information to be provided in the form of a simplified stability letter.

Scenarios should cover likely credible events, including collision and hull breach.

7.2.4. Is a loading computer or programme in use? (Yes/No/Not Seen/Not Applicable)

Class or Flag State approved. If a Class approved loading computer is not available, record in Other comments, how stress and stability calculations are performed.

7.2.5. Are there records indicating that the operational accuracy of the load computer is tested regularly? (Yes/No/Not Seen/Not Applicable)

Class approved data should be used and the tests should be carried out at the annual survey.

Regular on-board testing should also take place and records attesting to this should be maintained

7.2.6. Is the vessel/unit free of any inherent intact stability problems? (Yes/No/Not Seen)

Depending on vessel/unit type, free surface effects may differ widely. Check for any limitations in number of slack tanks noted in stability booklet and that personnel responsible for ballast control and stability are aware of the limitations.

7.2.7. Is there a system of verifying and recording the calibration of tank gauging systems and level alarms ? (Yes/No/Not Seen/Not Applicable)

Tanks should be manually sounded at least once per week and compared to remote reading gauges. Discrepancies should be recorded and available to the BCO. Ensure that sounding tubes are not blocked and that sounding pipes are marked indicating the tank served and are fitted with a cap.

7.2.8. Do procedures require checking of differences between actual and calculated displacements and are records maintained? (Yes/No/Not Seen/Not Applicable)

Weight discrepancies (missing weights) should be assumed to be located at the maindeck level or above.

7.2.9. Is the vessel/unit's stability calculated on a regular basis? (Yes/No/Not Seen/Not Applicable)

7.2.10. Are chain lockers, or other spaces at risk of flooding fitted with flood detection and permanently installed means to pump out? (Yes/No/Not Seen/Not Applicable)

This should also include forward storerooms and those opening onto any weather deck

3. Structural modifications

7.3.1. Has the vessel/unit's Classification society been involved in assessing/approving any structural modifications to the vessel/unit? (Yes/No/Not Seen/Not Applicable)

Class records should be examined to confirm that Class has been involved whenever significant modifications have occurred.

7.3.2. Is there evidence that the vessel/unit's stability information has been updated when structural or plant modifications have taken place? (Yes/No/Not Seen/Not Applicable)

Inspector should verify if stability changes have been approved by Class.

7.3.3. If applicable, are the vessel/unit's Master/OIM and Officers fully aware of the changes to stability information as a result of the structural or plant modifications? (Yes/No/Not Seen/Not Applicable)

7.3.4. If structural modifications have been undertaken, do they agree with the details recorded on the OVPQ? (Yes/No/Not Seen/Not Applicable)

Inspector should verify that the OVPQ has accurately recorded any modifications that have been made to the vessel/unit.

4. Additional comments

7.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

8. Operations

3. Diving

8.3.1. Does the vessel/unit or dive spread module have a valid Dive System Safety Certificate? (Yes/No/Not Seen)

State authority issuing the certificate.

8.3.2. Has the system been surveyed in the last 12 months and has the Dive System Safety Certificate had its annual endorsement? (Yes/No/Not Seen)

8.3.3. Has the vessel/unit's record of equipment for the Cargo Ship Safety Equipment Certificate been endorsed with details of the hyperbaric rescue unit and its capacity? (Yes/No/Not Seen/Not Applicable)

8.3.4. Does the air dive system meet the requirements of IMCA D23 and have appropriate documentation? (Yes/No/Not Seen/Not Applicable)

Ref IMCA D23 Design for Surface Orientated (Air) Diving Systems

8.3.5. Does the saturation dive system meet the requirements of IMCA D24 have appropriate documentation? (Yes/No/Not Seen/Not Applicable)

Ref IMCA D24 Design for Saturation (Bell) Diving Systems

8.3.6. Are the diving system and breathing gas facilities arranged in spaces or locations which are adequately ventilated and provided with suitable electric lighting? (Yes/No/Not Seen)

Check systems are in place to ensure the quality of air supplied.
Check the requirement for Ex lighting.

8.3.7. Are procedures in place for the effective control of the storage, handling and connection of breathing gas cylinders? (Yes/No/Not Seen)

8.3.8. Are all parts of the diving system that are sited on deck protected from the sea, icing or any damage that may result from other activities on board the vessel/unit? (Yes/No/Not Seen)

Freeboard should not be less than 1.5 metres - make an Observation if this is not the case.

8.3.9. Has an evaluation been carried out to ensure the vessel/unit will have sufficient intact and residual dynamic stability in all load conditions whilst the diving system and auxiliary equipment are installed on the vessel/unit, including its operation and d (Yes/No/Not Seen/Not Applicable)

Inspector should sight calculation records.

8.3.10. Has an evaluation of the strength and load distribution on the deck of the vessel/unit been carried out with respect to diving system and auxiliary equipment placement? (Yes/No/Not Seen/Not Applicable)

Inspector should sight records of assessment and calculation.

8.3.11. Has an evaluation of the sea fastening arrangement for the diving system, including auxiliary equipment, been carried out with respect to dynamic loading with vessel movement, including survival condition of the vessel/unit? (Yes/No/Not Seen/Not Applicable)

Inspector should sight records of evaluation.

8.3.12. Has the sewage system for the saturation system been linked up with vessel/unit's sewage system and is it fully in compliance with MARPOL IV Regulations for the Prevention of Pollution by Sewage from Ships? (Yes/No/Not Seen/Not Applicable)

If not connected to the ship's system, provide information on arrangements made.

8.3.13. Is the diving system and habitat protected from the effects of fire? (Yes/No/Not Seen)

Items to be checked include:

- structural fire protection (A60 bulkheads and doors)
- auto fire detection and alarms
- fixed fire extinguishing system
- portable fire extinguishers - one located by entrance to space containing the diving system.

8.3.14. Where pressure vessels are situated in enclosed spaces, is a manually actuated water spray system provided to cool and protect such pressure vessels? (Yes/No/Not Seen/Not Applicable)

System should have an application rate of 10 l/m²/per minute of the horizontal projected area of the pressure vessel.

8.3.15. Where pressure vessels are situated on open decks, are sufficient means in place to provide a water spray? (Yes/No/Not Seen/Not Applicable)

This may be provided by fire hose. If this is the case, check if hose is in place and the availability of sufficient hydrants.

8.3.16. Has the safety and integrity of the electrical connection of the diving system to the vessel/unit's system been formally assessed? (Yes/No/Not Seen)

Check that records of a formal assessment and regular maintenance and inspection are available.

8.3.17. Is the integrity of the electrical power supply to the diving system ensured in an emergency? (Yes/No/Not Seen)

Check that the vessel/unit's emergency power source has sufficient electrical power capacity to supply the diving system and the emergency load for the vessel/unit at the same time?

If the vessel/unit's emergency power source is not the dive system alternate source of power, state what the alternative source of electrical power is for the dive system in event of failure of main source?

The alternative source of electrical power should be located outside the machinery casings to ensure its functioning in the event of fire or other casualty causing failure to the main electrical installation.

8.3.18. Is the communication system arranged for direct two-way communication between the dive control stand and the bridge or DP control room and is a suitable back-up system available? (Yes/No/Not Seen)

8.3.19. Are formal hyperbaric chamber(s) evacuation contingency plans available? (Yes/No/Not Seen/Not Applicable)

8.3.20. Have periodic training drills of the hyperbaric rescue system been carried out? (Yes/No/Not Seen/Not Applicable)

State frequency of drills

8.3.21. Has the hyperbaric rescue unit been launched for test at annual survey or within the last 6 months are per IMCA guidelines? (Yes/No/Not Seen/Not Applicable)

8.3.22. Where the primary means of launching depends on the ship's main power supply, is a secondary and independent launching arrangement provided? (Yes/No/Not Seen/Not Applicable)

8.3.23. Have calculations been conducted to evaluate the dynamic snatch and impact loadings that may be encountered by the hyperbaric rescue unit on launch and recovery, in particular taking into consideration freeboard, sea height and worst case of trim and list (Yes/No/Not Seen/Not Applicable)

Where a diving system has been retro-fitted, check that formal calculations are available.

8.3.24. Do brakes on the handling system engage automatically in the event of power failure and are they provided with manual means of release? (Yes/No/Not Seen/Not Applicable)

8.3.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

9. ERRV

8.9.1. Does the vessel have a valid ERRV certificate ? (Yes/No/Not Seen/Not Applicable)

State certifying authority, scope, operational area, date of certification and period of validity.

8.9.2. Does the vessel have an operations manual, work instructions and procedures covering all aspects of operation? (Yes/No/Not Seen)

The procedures should include the safe operation of the vessel in case explosive or toxic atmosphere should occur due to blow-out or oil spill from offshore installations.

8.9.3. Is there a manual containing contingency plans for all credible scenarios associated with ERRV operations? (Yes/No/Not Seen)

Do contingency plans assign roles to individual crewmembers?

Check that roles are understood by relevant crewmembers.

8.9.4. Is there a system for training and exercising against the scenarios in the contingency plan? (Yes/No/Not Seen)

Check records for exercises and drills.

Evidence should be available of regular drills both with the assigned installation and independently. These drills should test all equipment associated with survivor recovery in realistic scenarios. Evidence should be provided that the whole crew is following an onboard training course. A copy of performance standards should be onboard and records should demonstrate they are being met.

8.9.5. Are rescue zones kept clear, properly maintained and are marks in good condition and clearly visible? (Yes/No/Not Seen)

Rescue zones should be clear of thrusters and propellers. Maximum freeboard to be less than 1.75m.

8.9.6. Is lighting in way of the rescue zone satisfactory? (Yes/No/Not Seen)

8.9.7. Is access route from rescue zone to reception area free of any obstructions? (Yes/No/Not Seen)

8.9.8. Are the daughter craft/FRCs maintained and in good condition? (Yes/No/Not Seen/Not Applicable)

8.9.9. Is the launching equipment maintained in good order? (Yes/No/Not Seen/Not Applicable)

Includes davits, winches, motors, wires, etc.

8.9.10. Is the equipment for recovering personnel from the sea in good working order? (Yes/No/Not Seen)

All crew to be provided with sufficient PPE appropriate for normal and emergency duties including head protection for all FRC crew.

Safety harnesses for use in rescue zones should have straps suitably sized.

Check condition of spare fuel storage cans (where used) and storage location.

Launching apparatus and deck cranes to be in good condition and regularly tested to statutory requirements. Weather limitations may apply in some areas.

Mechanical recovery devices should be in a state of continuous readiness and personnel should be familiar with their operation.

8.9.11. Are reception areas, treatment rooms for injured personnel, accommodation facilities for rescued personnel and sanitary facilities clean and tidy? (Yes/No/Not Seen)

Check provision of decontamination area, survivor reception area, treatment area, recovery area (survivor bunks made-up ready for use) and sanitary area. Also check skin degreaser and soap available.

8.9.12. Is the area for helicopter winch zone clearly marked, free of obstacles and surface treated with non-slip coating? (Yes/No/Not Seen/Not Applicable)

8.9.13. Is the communication equipment appropriate and in good order? (Yes/No/Not Seen)

Communication equipment may include the following:

- mobile maritime VHF radio.
- aeromobile VHF radio equipment for communication with helicopter aero mobile radio beacon
- intercom equipment between bridge, reception, medical treatment room accommodation for rescued personnel, rescue zone and accommodation.
- radio compass for maritime and aero mobile VHF emergency frequencies.
- telephone with head set for communication with doctor in hospital ashore.

8.9.14. Are additional lighting arrangements in good order? (Yes/No/Not Seen)

Deck lighting (main and 24 volt) to prove operational;

Searchlights operational with range and radius to meet relevant guidelines standard;

Internal emergency lighting in survivors accommodation to prove satisfactory.

8.9.15. Do medical facilities conform with the relevant standard? (Yes/No/Not Seen)

State which standard applies.

Sight Annual certificate of inspection of medical inventory by medical equipment supplier, medical logbook, records of monthly stores checks, system in place for replacement of expired medicines.

8.9.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

10. Accommodation/ Flotel

8.10.1. Are there sufficient marine crew to operate mooring anchors, DP systems and gangway operations concurrently? (Yes/No/Not Seen)

Inspector should check whether there is any limitation on mustering marine qualified personnel to move vessel at short notice.

8.10.2. Are station keeping parameters well publicised and adhered to? (Yes/No/Not Seen)

Notices should be placed at Gangway, Control Room and prominently in public areas to remind all personnel of limitations.

8.10.3. Are all cabins either single, two person or 'shift segregated' to ensure no out of hours disturbances? (Yes/No/Not Seen)

Operational procedures should ensure that cross shift cabins are avoided and that there is an effective means of planning who is appointed to each cabin. Procedures should also be in place to ensure that male/female segregation is appropriate.

8.10.4. Is a person designated as being in charge of personnel welfare on board? (Yes/No/Not Seen)

The identification and contact information should be well publicised to all

8.10.5. Are mess rooms and common rooms clean and tidy with controls ensuring working gear is not worn? (Yes/No/Not Seen)

8.10.6. Is there a fixed fire alarm and sprinkler system in accommodation areas? (Yes/No/Not Seen)

8.10.7. Are additional regular fire rounds made by crew in all accommodation and service areas? (Yes/No/Not Seen)

This should also include temporary accommodation modules.

8.10.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

12. Cable lay

8.12.1. Does the vessel/unit have a competence/training matrix that addresses cable laying and support operations? (Yes/No/Not Seen)

Spot check training, experience and certification records carried by personnel/crew

8.12.2. Does the vessel/unit have a competence/training matrix that addresses maintenance activities associated with the cable laying equipment? (Yes/No/Not Seen)

Spot check training, experience and certification records carried by personnel/crew

8.12.3. Are all cable laying facilities and equipment properly maintained and in good order? (Yes/No/Not Seen)

Relevant equipment includes:

- loading shutes
- loading tensioners
- loading winches/back tension winches
- carousels/baskets/reels
- drive systems
- dividing/packing system
- pick-up arms and reeling controllers
- feeding shutes and radius controllers
- overboarding shutes/radius controllers
- laying tensioner systems.

8.12.4. Are the Abandonment and Recovery winch(es) fully operational and are wires certified? (Yes/No/Not Seen)

Check inspection records and wire certification/identification.

8.12.5. Are all load monitoring devices and alarm systems in good order and regularly tested? (Yes/No/Not Seen)

Check test records and alarm panels for isolations

8.12.6. Are hang-off platforms and other working platforms in good order? (Yes/No/Not Seen)

Note: if retro-fitted or a temporary arrangement, check whether Class approved.

8.12.7. Is personnel access along lay spread route and on carousel in good order? (Yes/No/Not Seen)

Access should be provided at key points, with good visibility, lighting, anti-skid flooring and protection from falls

8.12.8. Is cable lay control system integrated/connected with vessel/unit's bridge? (Yes/No/Not Seen)

Do navigators/DPOs have displays showing operational status in relation to vessel/unit's position, and do cable Ops personnel have full information on vessel/unit's track and propulsion status?

8.12.9. Are there adequate voice communication systems available for the cable lay system and are they in good order? (Yes/No/Not Seen)

There should be at least two independent systems in place

8.12.10. Are video monitoring facilities for critical positions/operations of the cable lay system in good order? (Yes/No/Not Seen)

Monitors should be at Lay Control and bridge conning position if vessel/unit's movement is critical

8.12.11. Are local emergency stops for the cable lay system available, in good order and regularly tested? (Yes/No/Not Seen)

Check test records.

8.12.12. Is there a cable lay system data logger, and is it operational and in good order? (Yes/No/Not Seen/Not Applicable)

8.12.13. Are all cable lay equipment design, operational procedures and maintenance manuals available aboard, including a valid FME(C)A? (Yes/No/Not Seen)

Check that all manuals and instructions are current and in a language understood by the crew.

8.12.14. Do the manuals contain a wide range of contingency procedures for credible scenarios? (Yes/No/Not Seen)

These should include emergency situations and limited functionality situations (power generation; vessel manoeuvrability and cable lay equipment problems)

8.12.15. Are all cable lay operations formally risk assessed? (Yes/No/Not Seen)

8.12.16. Do operational records contain structural failure and collapse sequence data in case of overloads, and do operational procedures demand these are analysed and known throughout the operation? (Yes/No/Not Seen)

8.12.17. Are protective measures/barriers in place to ensure operator safety, in the event of system structural failure or collapse? (Yes/No/Not Seen)

8.12.18. Are all components of the cable laying system included in the vessel/unit's planned maintenance system? (Yes/No/Not Seen)

Check maintenance and test records.

8.12.19. Does the vessel carry a full set of operating and maintenance manuals for the specialised equipment required for cable laying operations? (Yes/No/Not Seen)

Check that all maintenance instructions are current and in a language understood by the crew.

8.12.20. Are critical spare parts clearly identified and available on board or at short notice? (Yes/No/Not Seen)

8.12.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

14. ROV operations

8.14.1. Is there evidence that risk assessments are carried out for all specific tasks related to ROV operations? (Yes/No/Not Seen)

8.14.2. If the vessel has been modified to carry out ROV Operations, have the additional weights been included in the vessel's stability information? (Yes/No/Not Seen/Not Applicable)

Changes to stability information to have Class approval and this should be evident in the vessel's stability booklet.

Check that any limitations have been documented and that key personnel are aware of them. Example limitations may include restrictions on the number of slack tanks and/or requirements to have tanks full or empty during ROV operations.

8.14.3. Is the deck area free from visual obstruction resulting from the positioning of the ROV or supporting equipment, when viewed from the conning area? (Yes/No/Not Seen)

Supporting equipment includes winch, spares containers or any other equipment used to support the ROV operation

8.14.4. If obstructions exist that impact on the master's views of ongoing operations, have CCTV cameras been installed? (Yes/No/Not Seen/Not Applicable)

The CCTV cameras must be positioned such that the area obstructed by the ROV or supporting equipment is now visible on a TV screen that is clearly visible from the conning position

8.14.5. Is there a system, including back-up, to ensure effective verbal communication between the navigating bridge and ROV control station? (Yes/No/Not Seen)

Primary and back up communication systems must be independent of each other (a single VHF unit with a primary and back up channel does not meet this requirement)

8.14.6. Does the ROV jib/davit have an obstruction-free path from the stored to deployed positions? (Yes/No/Not Seen)

8.14.7. Are protection rails fitted around the ROV work site? (Yes/No/Not Seen)

8.14.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

17. Well servicing and sub-sea operations

8.17.1. Are there documented procedures and general safety arrangements in place for activities on the exposed working decks, including moonpools if fitted? (Yes/No/Not Seen)

Including requirements for PPE, lifejackets, lifebuoys. Check safety signage and availability of fall arrestor equipment for more than one person to use in exposed areas.

CCTV monitoring of working areas should feed to bridge and operations control room.

8.17.2. Are risk assessments carried out for all subsea operations? (Yes/No/Not Seen)

Check that assessments include equipment deployment and recovery operations.

8.17.3. Are communications, including backup systems, suitable for operations on the working deck? (Yes/No/Not Seen/Not Applicable)

Check communication equipment (intercoms, telephones and UHV/VHF hand-held radios) including backup arrangements for:

- Communications between the working deck and the Operations Control Room operators
- Communication between the bridge and Operations Control Room

8.17.4. Does the vessel/unit have a competence/training matrix that addresses well servicing and sub-sea operations? (Yes/No/Not Seen/Not Applicable)

Spot check training, experience and certification records

8.17.5. Does the vessel/unit have a competence/training matrix that addresses maintenance activities associated with the well servicing and sub-sea equipment? (Yes/No/Not Seen/Not Applicable)

Spot check training, experience and certification records

8.17.6. Do the emergency procedures cover additional risks associated with the vessel/unit's operations? (Yes/No/Not Seen)

e.g. loss of stability/watertight integrity, loss of moorings/station keeping, emergency disconnect, helicopter accidents, severe weather, tidal waves, tsunami, solitons?

Procedures to be available onboard, evidence that personnel are familiar with them.

8.17.7. Do all overboard cable and umbilical chutes appear in good order and are they properly secured? (Yes/No/Not Seen/Not Applicable)

8.17.8. Are deck generators and tanks of gas/chemicals all clear of vessel/unit's heating, ventilation and air conditioning inlets? (Yes/No/Not Seen/Not Applicable)

8.17.9. Is there a competent person in charge of ballast control and stability calculations? (Yes/No/Not Seen)

Where applicable, is person suitably qualified under STCW95?

For MODUs, all personnel involved in ballast control operations should be trained and certified in line with IMO Resolution A.891(21), includes OIM, Barge Supervisor and Ballast Control Operator.

8.17.10. Can the Ballast Control Operators (BCO's) demonstrate adequate knowledge of the vessel/unit's ballast system, the control of free surface effects and the consequences of inadvertent ballast shift? (Yes/No/Not Seen)

Demonstrated via induction and vessel specific training records. If semi-submersible, to be capable of taking unit to survival draft if required. BCO's should know the operating inclination limits of the ballast control system, this should be stated in onboard documentation.

8.17.11. Can the vessel/unit's stability be calculated without extensive calculations? (Yes/No/Not Seen)

8.17.12. Is the stress and stability information included with the plan for current operations; have stability and where applicable, stress calculations been performed for the current operation and do the BCO's understand any limitations? (Yes/No/Not Seen)

Inspectors should determine that prior to specific operations involving the transfer of weights, calculations have been made for stress and stability conditions for the start, interim and completion of operations. Regular monitoring of stress and stability should be taking place throughout the operation to ensure that the conditions have been maintained within design limits.

8.17.13. Is there an inclinometer located near the ballast control panel? (Yes/No/Not Seen)

8.17.14. Are draft gauges operating correctly? (Yes/No/Not Seen/Not Applicable)

Procedure for calibration and cross reference to visual and loading computer values.

8.17.15. Are draft marks on vessel/unit clearly visible? (Yes/No/Not Seen/Not Applicable)

8.17.16. Is there a system for managing manual inputs into the stability programme? (Yes/No/Not Seen)

System of cross checking should be in place to assure accurate weights and CoG of materials placed subsea or recovered from seabed, are manually input to keep stability model accurate. Inspector to verify that sample inventories of variable weights appear reasonable and accurate.

8.17.17. Is there a system for recording changes to the vessel/unit's lightweight condition? (Yes/No/Not Seen)

Documented procedure with record sheets showing additions/deletions since last inclining experiment conducted.

8.17.18. Are the ballast and bilge systems covered by an FME(C)A? (Yes/No/Not Seen)

8.17.19. Is there a system for controlling the override of bilge and ballast system alarms? (Yes/No/Not Seen)

To be covered in procedures and documented.

8.17.20. Is access to the ballast control panel restricted? (Yes/No/Not Seen)

System to be in place to prevent unauthorised operation of bilge and ballast system.

8.17.21. Is the ballast control position attended continuously during sub-sea operations? (Yes/No/Not Seen)

Ballast station to be manned continuously to ensure prompt action can be taken when required.

8.17.22. Are all watertight doors, hatches and other openings in good order? (Yes/No/Not Seen/Not Applicable)

Seals, locking devices and remote indicators should be in good order and fully functional.

8.17.23. Is there a system for monitoring crane status during use and when stowed? (Yes/No/Not Seen/Not Applicable)

Crane should be regularly checked to see if slewing or rocking motions are controlled in a seaway; tension monitoring equipment should be operational

8.17.24. Are there at least two ballast pumps available to pump out each ballast tank? (Yes/No/Not Seen/Not Applicable)

If column stabilised, the pumps should be physically separated so that loss or damage to one pump will not adversely affect the other pump. To be confirmed by FME(C)A.

8.17.25. Are pumproom emergency bilge suction valves clearly marked, fitted with a position indicator and capable of remote operation? (Yes/No/Not Seen/Not Applicable)

8.17.26. Is the vessel/unit equipped with service cranes covering all anticipated operations? (Yes/No/Not Seen/Not Applicable)

Located to minimise blind sectors.

8.17.27. Are all cement silos and associated valves, pumps, vents and air supplies fully tested and in good order? (Yes/No/Not Seen/Not Applicable)

8.17.28. Are all mud and brine tanks, pumps, valves and pipeline systems in good order and fully tested? (Yes/No/Not Seen/Not Applicable)

8.17.29. Is all deck mounted equipment, control skids and storage containers in good order and provided with appropriate cautionary signage? (Yes/No/Not Seen/Not Applicable)

Exhausts, dangerous chemicals, hot pipes, pressurised pipes, radioactive sources should all be identified and managed within the vessel/unit's SMS.

8.17.30. Are all connections and deck pipework for bulk products, such as water and fuel, colour coded and clearly marked at loading stations? (Yes/No/Not Seen/Not Applicable)

Includes all bulk products, both liquid and non-liquid.

8.17.31. Are any transfer hoses fitted with lifting saddles and stowed in racks? (Yes/No/Not Seen/Not Applicable)

Lifting gear to be certified.

8.17.32. If carried on board, are transfer hoses fitted with flotation collars? (Yes/No/Not Seen/Not Applicable)

Especially those for hydrocarbon or NLS. Check also fitted with reflective tape.

8.17.33. Are hydrocarbon and NLS hoses, if carried, fitted with dry break couplings? (Yes/No/Not Seen/Not Applicable)

8.17.99. Additional Comments (Text/Not Applicable)

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9. Mooring

1. General

9.1.1. Are certificates available for all mooring ropes, wires, chains, shackles, etc.? (Yes/No/Not Seen)

Test certificates for mooring lines and associated equipment should be kept in a file clearly indicating the location of each item.

9.1.2. Are there records of the inspection and maintenance of mooring ropes, wires and equipment? (Yes/No/Not Seen)

Records should be kept of date placed in use, inspections, and any maintenance.

9.1.3. Are there sufficient competent marine crew to conduct safe mooring operations? (Yes/No/Not Seen)

Crewing levels should take into account all mooring scenarios. On barges, rigs, etc., mooring operations may take days to complete.

9.1.4. Is the provision of primary and backup communication equipment satisfactory? (Yes/No/Not Seen)

For example, UHF, VHF radios, telephones and talkback?

2. Mooring procedures.

9.2.1. Are moorings satisfactorily deployed and tended, taking into account anticipated conditions? (Yes/No/Not Seen/Not Applicable)

Generally mooring lines of the same size and type (material) should be used for all leads. Mooring lines should be arranged so that all lines in the same service are about the same length.

Note: The mooring arrangement in use for the port and its effectiveness should be reviewed. Breast lines provide the bulk of transverse restraint, back springs the longitudinal. Headlines and stern lines contribute much less to the mooring strength than is commonly supposed.

9.2.2. Are mooring lines secured to bitts turned up correctly? (Yes/No/Not Seen/Not Applicable)

The recommended method of turning up a rope on bitts is to take one or two full turns around the leading post before figure of eighting. The reason for this is to reduce the tendency to pull the two posts together.

However when turning up unjacketed high modulus lines around bitts, for example when a tug's line fast, two turns should be taken around the leading post prior to turning the line up in a figure of eight fashion.

Note: Mooring lines must not be secured to winch warping drums.

9.2.3. Are all powered mooring lines correctly reeled on drums? (Yes/No/Not Seen/Not Applicable)

A band brake is designed to work in one direction only, so the line must always be reeled correctly onto the drum. Each arrangement should be assessed on a case-by-case basis with reference to the manufacturer's guidance. With lines correctly reeled, tension on the line should be in a direction that causes the free end of the band to be forced towards the fixed end, thereby forcing the two halves of the band together.

9.2.4. Are all powered mooring lines secured on brakes and are the winches out of gear? (Yes/No/Not Seen/Not Applicable)

Winches should never be left in gear with the mooring winch band brake on. Hydraulic or electric drives can suffer severe damage should the brake render. Mooring drums should always be left disconnected from the winch drive whenever the mooring line is tensioned and the band brake is fully applied.

9.2.5. Are all mooring lines stowed neatly to minimise tripping hazards and are mooring areas clear and unobstructed? (Yes/No/Not Seen)

Mooring ropes should be stowed on a grating away from chemicals and out of direct sunlight.

9.2.6. Are there sufficient mooring fittings available to enable deployment of fenders, if necessary? (Yes/No/Not Seen)

9.2.7. If the vessel/unit is equipped with fenders for mooring alongside, are they in good condition? (Yes/No/Not Seen/Not Applicable)

Including the fender mooring pennants and pickup arrangements.

3. Equipment

9.3.1. Are all mooring winches in good order? (Yes/No/Not Seen/Not Applicable)

Winches fully operable, covered by planned maintenance system. Winch guards to be in place.

Check that winch foundations are in a satisfactory condition and that brake linings, drums and pins appear to be in good order.

9.3.2. Are mooring wires and ropes in good order? (Yes/No/Not Seen)

Notes: Splicing of ropes is acceptable, but reduces the strength of the rope by about 10%. Splices in eyes and for repairs should have a minimum of 5 tucks.

Particular attention should be paid to the eyes of mooring wires. If there are more than three broken wires in any strand, or five in any adjacent strands

in a length of wire 10 times the diameter, the damaged part requires removal and the wire re-splicing.

There should be a routine for the maintenance of wires and the lubrication of them using a preservative which will effectively penetrate the strands and wires.

9.3.3. Are pedestal fairleads, roller fairleads and other rollers well greased and free to turn and are bits and chocks free of grooving? (Yes/No/Not Seen/Not Applicable)

9.3.4. Are sufficient closed fairleads available for 'ship-to-ship' mooring? (Yes/No/Not Seen/Not Applicable)

9.3.5. Are appropriate stoppers available and in good condition? (Yes/No/Not Seen/Not Applicable)

Stoppers to be of a material appropriate to the ropes in use.

9.3.6. Is information available verifying the SWL of all mooring fittings? (Yes/No/Not Seen)

Comment if SWL is marked on individual fittings.

4. Anchoring equipment

9.4.1. Are windlasses, anchors, locking bars and cables in a satisfactory condition and operating effectively? (Yes/No/Not Seen/Not Applicable)

Note: The condition of the locking bars should be checked to ascertain that they function correctly by locking the chain when the vessel/unit is at anchor to prevent the brake having to take the full load of the cable.

9.4.2. If fitted, are chain locker doors securely battened down? (Yes/No/Not Seen/Not Applicable)

9.4.3. If fitted, are spurling pipes normally secured to prevent water ingress? (Yes/No/Not Seen/Not Applicable)

5. Spread mooring

9.5.1. Does the vessel/unit have procedures for spread mooring with anchors? (Yes/No/Not Seen/Not Applicable)

To be available on board and include anchoring over or near to obstructions. Procedures should also include precautions to be taken during active mooring adjustments in adverse weather conditions.

9.5.2. Has an FME(C)A been carried out on spread moored systems? (Yes/No/Not Seen/Not Applicable)

9.5.3. Is certification available for mooring chains, wires and ancillaries for each leg? (Yes/No/Not Seen/Not Applicable)

9.5.4. Is there a system for monitoring and recording of mooring line tension and lineout/scope of spread moored systems and are records maintained? (Yes/No/Not Seen/Not Applicable)

9.5.5. Is there a system for maintenance and calibration of lineout, scope and tension meters and are records maintained? (Yes/No/Not Seen/Not Applicable)

9.5.6. Are the controls for local and, if applicable, remote winch/windlass operation in good order? (Yes/No/Not Seen/Not Applicable)

9.5.7. Are the emergency stops, if fitted, for winches/windlasses routinely tested and records maintained? (Yes/No/Not Seen/Not Applicable)

Record the date when the winch/windlass emergency release was last tested.

6. Barge mooring

9.6.1. If there is no permanent anchoring system installed, is an emergency anchor available? (Yes/No/Not Seen/Not Applicable)

Acceptable arrangements for small barges include an anchor fitted on a slanted billboard (e.g. @ 60°) at the stern of the barge, secured for easy release. The cable should be secured and arranged so that it will payout unobstructed when the anchor is let go.

9.6.2. Is the barge fitted with at least four mooring bollards/stag horns on each side? (Yes/No/Not Seen/Not Applicable)

7. Additional comments

9.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

10. Communications

1. General

10.1.1. Are instructions for operating the digital selective calling (DSC) and satellite communications equipment in an emergency clearly displayed? (Yes/No/Not Seen/Not Applicable)

10.1.2. Are the vessel/unit's call sign and Inmarsat ship station identity clearly marked on the radio installation? (Yes/No/Not Seen/Not Applicable)

10.1.3. Can officers demonstrate a satisfactory understanding of how to operate communications equipment in an emergency? (Yes/No/Not Seen)

10.1.4. Is a continuous listening watch maintained on VHF channel 16? (Yes/No/Not Seen)

10.1.5. Are officers aware of the requirements for position updating on two-way communications equipment? (Yes/No/Not Seen/Not Applicable)

All two-way communication equipment which is capable of automatically including the ship's position in the distress alert shall be automatically provided with this information from an internal or external navigation receiver, if either is installed. (SOLAS IV/18)

If such a receiver is not installed, the ship's position and the time at which it was determined shall be manually updated at intervals not exceeding four hours, while the ship is underway, so that it is always ready for transmission by the equipment. (SOLAS IV/18)

10.1.6. Has the AIS been programmed with up-to-date voyage information? (Yes/No/Not Seen/Not Applicable)

10.1.7. Are officers aware of the function of the ship security alert system and how to operate it? (Yes/No/Not Seen/Not Applicable)

Under no circumstances should enquiries be made as to the system details or location of activation points.

All ships constructed after 1st July 2004 shall be fitted with a ship security alert system. (SOLAS XI-2/6.1.1)

The ship security alert system shall, when activated, initiate and transmit a ship-to-shore security alert to a competent authority, which in these circumstances may include the Company*, identifying the ship, its location and indicating that the security of the ship is under threat or it has been compromised. (SOLAS XI-2/6.2.1)

It shall not send the security alert to other ships or raise the alarm on board and it shall continue until deactivated or reset. (SOLAS XI-2/6.2.2,3 and 4)

The ship security alert system shall be capable of being activated from the navigation bridge and in at least one other location. (SOLAS XI-2/6.3.1)

* Note: OVID defines Company as the vessel Operator.

10.1.8. Has a qualified person been designated to handle distress communications? (Yes/No/Not Seen)

Every ship shall carry personnel qualified for distress and safety radiocommunication purposes to the satisfaction of the Administration. (SOLAS IV/16.1)

Note: That person should not be the master.

10.1.9. Are periodical tests of communications equipment carried out and recorded as required? (Yes/No/Not Seen/Not Applicable)

The following tests should be carried out:

Daily:

- the proper functioning of the DSC facilities without radiation of signals;
- battery voltage checks;
- printers.

Weekly:

- the proper function of the DSC facilities by means of a test call when within communication range of a coast station;
- where the reserve source of energy is not batteries, the reserve source to be tested.

Monthly:

- each Emergency Position Indicating Radio Beacon (EPIRB) to be tested to determine its capability to operate properly using the means provided on the device and without using the satellite system;
- each marine search and rescue transponder (SART) using the in-built test facility and checked for security and signs of damage;
- the security and condition of all batteries providing a source of energy for any part of the radio installation;
- the condition of all aerials and insulators;
- each survival craft two-way VHF equipment, on a frequency other than channel 16.

10.1.10. Is the Radio Log being maintained correctly? (Yes/No/Not Seen/Not Applicable)

The following should be being recorded:

- a summary of distress, urgency and safety communications;
- important incidents relating to the radio service;
- where appropriate, the position of the ship at least once per day;
- a summary of the condition of the radio equipment, including its sources of energy;
- personnel assigned responsibility for sending a distress alert instructed to operate properly all radio equipment on the ship;
- necessary instruction and information on the use of the radio equipment to relevant crew members;
- pre-sailing checks to ensure that all equipment is in an efficient working condition;
- the results of the testing of the DSC distress and safety radio equipment by means of a test call at least once a week;

- the results of the testing of the distress and safety radio equipment by means of a test at least once each day but without radiating any signal;
- the on-load and off-load daily test of the batteries;
- the results of the weekly hydrometer or load test of the batteries;
- the results of the monthly security check of each battery and its connections.

10.1.11. If applicable, are radio emergency batteries in a satisfactory fully charged condition and the battery log completed up to date? (Yes/No/Not Seen/Not Applicable)

Where a reserve source of energy consists of rechargeable accumulator batteries, their capacity shall be checked, using an appropriate method, at intervals not exceeding 12 months, when the ship is not at sea. (SOLAS IV/13.6)

10.1.12. Are arrangements in place to ensure the availability of the radio equipment? (Yes/No/Not Seen/Not Applicable)

On ships engaged on voyages in sea areas A1 and A2, the radio availability shall be ensured by using such methods as:

- duplication of equipment; or
- shore based maintenance (the requirement on GMDSS vessels to have shore based maintenance does not infer there should necessarily be a contract but that maintenance should be carried out annually by a shore-based i.e. 'expert' organisation); or
- at-sea electronic maintenance capability; or
- a combination of these as may be approved by the Administration. (SOLAS IV/15.6)

On ships engaged on voyages in sea areas A3 and A4, the radio availability shall be ensured by using a combination of at least two of the methods detailed above. (SOLAS IV/15.7)

2. Equipment

10.2.1. Is the communications equipment in good order? (Yes/No/Not Seen)

Notes: The minimum requirements for radio equipment for the vessel/unit should be taken from the Radio Certificate and its attachment Form R or in Form C if the Safety Radio Certificate is combined in the Harmonised Certificate. If the vessel/unit uses EX rated mobile phones within a gas-hazardous area confirm that proper certification is provided.

10.2.2. Is the satellite EPIRB fitted, armed and labelled correctly and inspected in accordance with the manufacturer's requirements? (Yes/No/Not Seen/Not Applicable)

The EPIRB shall be:

- capable of transmitting a distress alert through the polar orbiting satellite service operating in the 406 MHz band;"
- installed in an easily accessible position;
- ready to be manually released and capable of being carried by one person into a survival craft;
- capable of floating free if the ship sinks and of being automatically activated when afloat; and
- capable of being activated manually. (SOLAS IV/7.1.6)

Satellite EPIRBs shall be annually tested within 3 months before the expiry date, or 3 months before or after the anniversary date, of the Cargo Ship Safety Radio Certificate. The test may be conducted on board the ship or at an approved testing station; and subject to maintenance at intervals not exceeding five years, (SOLAS IV/15.9)

Notes: The vessel/unit's name, the serial number and the maritime mobile services identity (MMSI or 15 Hex ID) should be clearly indicated on the EPIRB.

The inspection of EPIRBs should include:

- inspection of the housing to ensure it is undamaged;
- inspection of the hydrostatic release unit to ensure it is in good order and in date. Releases should be renewed after two years;
- inspection of the lanyard, which should be neatly stowed and not attached to the vessel/unit;
- ensuring that the markings remain clearly decipherable;
- checking the battery to ensure it is in good order and in date. The battery life for most EPIRBs is 5 years;
- carrying out a self test. Most EPIRBs have a self test facility which is usually a spring-loaded switch.

When activated a light will indicate that the test circuits are operating correctly and sometimes this will also activate the strobe light. It is recommended that the self test switch be held for no more than 2 flashes of the strobe light, or no longer than 1 minute after the first self-test mode burst transmission.

When the self-test is activated on a 406 Mhz EPIRB, the EPIRB is allowed to radiate a single burst which is specially coded so that it is ignored by the COSPAS-SARSAT system.

The EPIRB must never be tested by actual operation. The annual testing of 406 MHz satellite EPIRBs required by SOLAS IV/15.9 requires test equipment capable of performing all the relevant measurements detailed in MSC/Circ 1040.

10.2.3. Is the vessel/unit equipped with sufficient portable radios for use on deck? (Yes/No/Not Seen/Not Applicable)

Note: Sufficient portable radios should be available to allow communications between the bridge/control rooms and all operational personnel.

10.2.4. Is there a copy of the GMDSS Operators Handbook onboard? (Yes/No/Not Seen/Not Applicable)

10.2.5. Are there procedures for the use of communications equipment within 500 m/ safety zones? (Yes/No/Not Seen/Not Applicable)

Check that intrinsically safe portable radios are available for operations inside a 500 m zone of producing installations. GMDSS radios should not be utilised for this purpose.

Best practice is to utilise UHF, where possible.

3. Additional comments

10.99. Additional Comments (Text/Not Applicable)

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11. Propulsion, power generation and machinery

1. Policies, procedures and documentation

11.1.1. Is the vessel/unit provided with adequate operator's instructions and procedures? (Yes/No/Not Seen)

Note: Engineering procedures should include at least the following:

- engine room organisation and operation;
- unmanned machinery space (UMS) operation, when applicable;
- reporting equipment deficiencies;
- engine room emergency preparedness and actions in the event of an emergency;
- ensuring that all essential engine room equipment is available and fully operational;
- planned maintenance;
- the control of spare parts.

11.1.2. Are the duties of the watch-standing officers and ratings clearly defined? (Yes/No/Not Seen/Not Applicable)

11.1.3. Is the engine logbook fully maintained in ink, both at sea and in port? (Yes/No/Not Seen/Not Applicable)

11.1.4. If the machinery space is being operated manned, are there sufficient engineers on board? (Yes/No/Not Seen/Not Applicable)

Note: If the machinery space is certified for unmanned operation, it will be likely that the Safe Manning Certificate will allow a reduced number of engineers to be carried. Ensure that the manning level, if operating manned, is not at that reduced level.

11.1.5. Has the chief engineer written his own standing orders and are night orders being completed? (Yes/No/Not Seen/Not Applicable)

Notes: Standing order and night order books should be checked to ascertain that all officers are instructed as to their responsibilities. Standing orders should be written by the chief engineer to reflect the specific operator's requirements, as well as his own, particular to the vessel/unit, the trade and the experience of the engineering officers aboard at the time. It should be updated and signed by each chief engineer as they join the vessel/unit. Night orders should be written as and when they are required to supplement the standing orders.

11.1.6. Have the watch engineers countersigned the chief engineer's standing and night orders as read and understood? (Yes/No/Not Seen/Not Applicable)

11.1.7. Are there adequate procedures to prevent uncontrolled entry into the engine room? (Yes/No/Not Seen/Not Applicable)

Notes: Procedures should be in place to ensure that no-one enters the engine compartment alone, for example to carry out final evening checks during unattended periods, without first informing the bridge. Contact should be maintained at predetermined periods.

Ratings should not be required to attend the engine room alone during unattended periods.

On vessels/units where a single engineer maintains a watch, there should be procedures as detailed above to regularly and frequently maintain contact with the bridge or cargo control room, unless a dead man alarm system is fitted.

11.1.8. Are there procedures to restart critical equipment? (Yes/No/Not Seen/Not Applicable)

Note: Written procedures should be readily available within the engine room which should be specific to the particular vessel/unit in order to identify relevant controls.

11.1.9. Are engineers familiar with restart procedures and are records available of exercises and drills? (Yes/No/Not Seen/Not Applicable)

11.1.10. Does the operator subscribe to a fuel oil testing programme? (Yes/No/Not Seen/Not Applicable)

Check availability of analysis reports.

11.1.11. Does the operator subscribe to a lubricating oil testing programme? (Yes/No/Not Seen/Not Applicable)

Check availability of analysis reports.

11.1.12. Does the operator subscribe to a hydraulic oil testing programme? (Yes/No/Not Seen/Not Applicable)

Check availability of analysis reports.

11.1.13. Are detailed bunker transfer instructions available? (Yes/No/Not Seen/Not Applicable)

Notes: All bunkering operations should be carefully planned and executed. Records should include receipts for all fuels received. Samples should be drawn.

Personnel involved in the bunkering operation onboard should have no other tasks and should remain at their workstations during topping off. This is particularly important when bunkers are being loaded concurrent with cargo operations, so that conflicts of interest for operational personnel are avoided.

Planning of bunkering operations should include the following:

- determining that there is adequate space for the volume of bunkers to be loaded;
- the maximum filling volume; Controls for the setting of bunker system valves;
- determining loading rates for the start of loading, bulk loading and topping off;

- arrangements of bunker tank ventilation;
- internal tank overflow arrangements;
- verification of gauging system operation and accuracy;
- alarm settings on overfill alarm units;
- communication with the supplier to establish when bunkering can be undertaken;
- method of determining the temperature of the bunkers during loading;
- communications procedure for the operation, including emergency stop;
- changing over tanks during loading;
- containment arrangements and cleanup equipment to be available;
- manning requirement to execute the operation safely.

An MSDS should be received and reviewed for each bunker consignment.

It is preferable that a diagram of the fuel oil transfer piping be attached to the plan.

For LNG fuelled vessels check that:

- the required operations and maintenance manual is on board;
- personnel have necessary skills for gas bunkering operations;
- a plan exists for system maintenance and testing;
- the monitoring system is functioning;
- high and low pressure alarms are functioning;
- gas detection systems have been function tested and records maintained;
- emergency drills related to bunkering and LNG storage have been undertaken;
- a spill tray is in position in way of bunker manifold to contain any liquid spill.

11.1.14. If the machinery space is certified for unmanned operation, is it being operated in that mode? (Yes/No/Not Seen/Not Applicable)

If the machinery space is certified for unmanned operation but is not being operated in that mode, record an Observation and describe the reason why.

11.1.15. In the case of UMS vessels, are machinery alarms and engineer's alarm systems regularly tested with results recorded? (Yes/No/Not Seen/Not Applicable)

11.1.16. Is the dead man alarm system, where fitted, in good order and used as required? (Yes/No/Not Seen/Not Applicable)

The personnel alarm should automatically give an alarm on the navigating bridge or in the officers' quarters as appropriate, if it is not reset from the machinery spaces in a period satisfactory to the Administration, but not exceeding 30 minutes. (IMO International Codes on Alarms and Indicators, 1995. 7.1.1)

2. Planned maintenance

11.2.1. Is a planned maintenance system in place, being followed and is it up to date? (Yes/No/Not Seen)

Notes: Although there is no specific requirement for any particular computer or paper-based planned maintenance system (PMS) to be provided, the Company should establish procedures to ensure that the vessel/unit is maintained in conformity with the provisions of the relevant Regulations and with any additional requirements which may be established by the Company and specified in the ISM Code Section 10.1.

Inspectors must ascertain that a PMS is in place and that it is accurate, up to date, effective and maintained in accordance with the requirements of the ISM Code and the Operator's procedures. Responsible personnel should be able to demonstrate familiarity with the system. The planned maintenance programme should include:

- details of maintenance schedules whether carried out according to running hours or calendar period, or if condition monitoring is used as a substitute;
- details, referenced to equipment manufacturer's instructions or experience, of what maintenance is required;
- historical data on maintenance and repair work which has been carried out;
- spare parts inventory;
- any proposed major repairs or overhauls should have a completion schedule, with spare parts verified as being on board or on order.

11.2.2. Are items of critical equipment identified in the planned maintenance system? (Yes/No/Not Seen/Not Applicable)

11.2.3. Is a comprehensive and up to date inventory of spare parts being maintained? (Yes/No/Not Seen/Not Applicable)

Check that spare parts for critical equipment are specifically addressed.

3. Safety management

11.3.1. Is an engineer's call alarm fitted and is it in good order and tested regularly and the results recorded? (Yes/No/Not Seen/Not Applicable)

Note: Inspectors should consider testing this critical alarm. To do so if permitted alongside, request that a suitable test alarm be initiated which should sound on the bridge, in the duty engineer's quarters and in public rooms. If not answered within the specified period a back-up alarm system should be activated. A PA announcement prior to the test should be made.

11.3.2. Are emergency escape routes clearly marked, unobstructed and adequately lit? (Yes/No/Not Seen/Not Applicable)

11.3.3. Is the level of lighting in all areas of the machinery spaces satisfactory? (Yes/No/Not Seen/Not Applicable)

11.3.4. Are vessel/unit's engine/boiler exhausts fitted with spark arresters for safe operation alongside installations/other vessels? (Yes/No/Not Seen/Not Applicable)

Procedures should be in place for regular checking and cleaning of spark arresters from accumulated soot.

11.3.5. Do records indicate the regular testing of emergency equipment? (Yes/No/Not Seen/Not Applicable)

Notes: Emergency equipment will include, where fitted, the emergency fire pump, main fire and foam pumps, emergency air compressor, emergency generator, emergency generator switchboard, emergency steering, quick closing valves, emergency stops, engineers alarms and bilge ejectors. Testing of the emergency generator should be carried out under load, but to do this may require the vessel to be blacked out. This testing is not to be conducted during the inspection. Inspectors must establish that the operator has a requirement for this test and determine from records that it is carried out at least annually.

Where fitted, the emergency air compressor should be regularly tested to the starting pressure of the diesel generator. The emergency air reservoir should be permanently maintained at the required pressure.

Check individual training records to verify that training is carried out for the above emergency equipment.

11.3.6. Are machinery emergency stops and shut offs clearly marked and do records indicate that they have been regularly tested? (Yes/No/Not Seen)

Note: Emergency stops include ventilation fans, fuel pumps and the quick closing valves for fuel and lubricating oil tanks.

11.3.7. Are diesel engine high and low pressure fuel delivery pipes adequately jacketed or screened? (Yes/No/Not Seen/Not Applicable)

External high pressure fuel delivery lines between the high pressure fuel pumps and fuel injectors shall be protected with a jacketed piping system capable of containing fuel from a high pressure line failure. A jacketed pipe incorporates an outer pipe into which the high pressure fuel pipe is placed, forming a permanent assembly. The jacketed piping system shall include a means for collection of leakages and arrangements shall be provided for an alarm to be given of a fuel line failure. (SOLAS II-2/4.2.2.5.2)

11.3.8. Are diesel engine exhausts and other hot surfaces in the vicinity of fuel, diesel, lubricating and hydraulic oil pipes protected against spray? (Yes/No/Not Seen/Not Applicable)

Surfaces with temperatures above 2200C which may be impinged as a result of a leak from an oil system failure shall be properly insulated. (SOLAS II-2/4.2.2.6.1)

Precautions shall be taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces. (SOLAS II-2/4.2.2.6.2)

11.3.9. Are hot surfaces, particularly diesel engines, free of any evidence of fuel, diesel and lubricating oil? (Yes/No/Not Seen)

Note: Lagging and insulation should be in good condition and free from oil.

If there is evidence of oil leakage or oil soaked lagging this must be recorded as an Observation.

11.3.10. Are fuel and lubricating oil handling areas, including purifier rooms, if applicable, ventilated and clean? (Yes/No/Not Seen/Not Applicable)

Note: A significant number of major incidents occur as a result of engine room fires. It is of particular importance that purifier rooms and oil handling areas are maintained in a clean condition.

11.3.11. Are main engine bearing temperature monitors, or the crankcase oil mist detector, in good order? (Yes/No/Not Seen/Not Applicable)

Internal combustion engines of 2,250 KW and above or having cylinders of more than 300 mm bore shall be provided with crankcase oil mist detectors, or engine bearing temperature monitors, or equivalent devices. (SOLAS II-1/47.2)

Note: Testing of the detector alarm can be carried out either electronically or by removing a cover and blocking the sensor path.

11.3.12. Where hydraulic aggregate pumps are located within the main engine compartment, is an oil mist detector fitted? (Yes/No/Not Seen/Not Applicable)

Note: In vessels/units fitted with hydraulic pressure packs, pressure in the transmission pipes can be very high. If the aggregate pumps are located within the engine compartment it is advisable that an oil mist detector be fitted. Where the aggregate pumps are located within a dedicated, fully segregated compartment within the main engine compartment, the question should be answered N/A.

11.3.13. Are the main switchboard, alternators and other electrical equipment satisfactorily protected from water spray? (Yes/No/Not Seen/Not Applicable)

If the main switchboard is not located in the engine control room or other protected location, record in Other comments, the measures that have been taken to protect it from water spray.

Note: Risk due to water spray in the event of failure of sea water pipes, including fire mains and hydrants, should be assessed.

11.3.14. Is deck insulation provided to the front and rear of medium power (i.e. 220V to 1000V) electrical switchboards and is it in a satisfactory condition? (Yes/No/Not Seen/Not Applicable)

Where necessary non-conducting mats or gratings shall be provided at the front and rear of the switchboard. (SOLAS II-1/45. 2)

Non-conducting deck coverings, such as non-conducting mats or gratings, suitable for the specific switchboard voltage should be installed for personnel protection at the front and rear of the switchboard and should extend the entire length of and be of sufficient width to suit, the operating space. (USCG 46 CFR 111.30-11)

Notes: The USCG requirements apply to switchboards exceeding 250 volts.
Some decks are made from insulating composite material and will not need extra insulation.

11.3.15. Are gauge glass closing devices on oil tanks of a self-closing, fail-safe type and not inhibited? (Yes/No/Not Seen/Not Applicable)

11.3.16. Are self-closing sounding devices to double bottom tanks in good order, closed and capped? (Yes/No/Not Seen/Not Applicable)

11.3.17. Are all items of moving machinery which may present a hazard provided with adequate guards? (Yes/No/Not Seen/Not Applicable)

11.3.18. Are workshop machine tools in a safe condition and is adequate eye protection available? (Yes/No/Not Seen/Not Applicable)

11.3.19. Is all loose gear in the machinery spaces, stores and steering compartment properly secured? (Yes/No/Not Seen)

11.3.20. Are chemicals properly stowed and are Material Safety Data Sheets available? (Yes/No/Not Seen)

Note: Protective equipment including a face shield, apron, gloves and an eye-wash should be provided at the place where chemicals are stored.

11.3.21. Are machinery spaces and steering compartments clean and free from obvious leaks and is the overall standard of housekeeping and fabric maintenance satisfactory? (Yes/No/Not Seen)

Note: Workshops, compressor rooms, chemical stores, spare gear stores, electricians store/workshop should be checked. Safety notices and signs appropriate to the specific compartments should be posted.'

11.3.22. Are bilge systems operational and bilges free of oil, rubbish and sediment? (Yes/No/Not Seen)

Note: Oily areas indicate a lack of adequate maintenance and cleanliness. However, a small amount of oil in savealls should not be considered unsatisfactory.

11.3.23. Are bilge high level alarm systems regularly tested and are records maintained? (Yes/No/Not Seen/Not Applicable)

Note: Inspectors should consider requesting that this critical alarm be tested in their presence. It should be borne in mind that most bilge alarms are fitted with time delays.

11.3.24. Are seawater pumps, sea chests and associated pipework in a satisfactory condition and free of hard rust and temporary repairs, particularly outboard of the ship-side valves? (Yes/No/Not Seen/Not Applicable)

Note: The condition of sea chests, sea water lines, storm valves and hull penetrations should be carefully checked to ensure that they are in good condition. Evidence of hard rust or deterioration should be recorded as an Observation.

11.3.25. Are valves and pipework marked or colour coded? (Yes/No/Not Seen/Not Applicable)

4. Machinery status

11.4.1. Are all items of main, auxiliary and emergency plant in good order and reported to be fully operational? (Yes/No/Not Seen)

Items of machinery may include:

- the main engine(s);
- auxiliary engines and generators;
- waste heat units;
- compressors, including main, instrument and emergency air compressors;
- purifiers and fuel oil handling equipment;
- sewage plant;
- bilge pumping arrangements and oily water separators;
- pipework, including steam, fuel, lubricating oil, seawater, sewage, drain and air pipes, etc;
- refrigeration and air conditioning machinery;
- hydraulic aggregate pumps;
- ventilation fans and trunking;
- stern tube and thruster sealing arrangements;
- burner, tubes, uptakes, exhaust manifolds and spark arrestors.

11.4.2. Is the engine side manoeuvring station in good order and are engineers familiar with the procedure for taking control from the bridge in an emergency? (Yes/No/Not Seen/Not Applicable)

Note: Procedures should be readily available for this method of operation.

11.4.3. Are concise starting instructions for the emergency generator, where fitted, clearly displayed? (Yes/No/Not Seen/Not Applicable)

Each emergency generating set arranged to be automatically started shall be equipped with starting devices approved by the Administration with a stored energy capability of at least three consecutive starts. A second source of energy shall be provided for an additional three starts within 30

minutes unless manual starting can be demonstrated to be effective. (SOLAS II-1/44.2)

Notes: These instructions are not for the use of the qualified engineering personnel, but for others who might be required to start the generator in an emergency.

Where the emergency generator cannot be effectively started manually and the starting source relies on a single starter motor, then an alternative means of applying the "charge", such as a duplicate starting system or spare starter motor, should be available

11.4.4. Where applicable, is the emergency generator fuel tank provided with sufficient fuel? (Yes/No/Not Seen/Not Applicable)

The generator should be capable of providing full load requirements for at least 18 hours. (SOLAS II-1/43.2)

Notes: This may not necessarily mean a full tank. A minimum quantity to provide sufficient fuel for this requirement should have been established. If necessary, the emergency generator fuel tank should be charged with fuel designed for use in sub-zero temperatures. Every oil fuel pipe, which, if damaged, would allow oil to escape from a storage, settling or daily service tank situated above the double bottom, shall be fitted with a cock or valve directly on the tank capable of being closed from a safe position outside the space concerned in the event of a fire occurring in the space in which such tanks are situated. (SOLAS 74 II-2/15.2.5)

Oil fuel pipes, which if damaged would allow oil to escape from a storage, settling or daily service tank having a capacity of 500 litres and above situated above the double bottom, shall be fitted with a cock or valve directly on the tank capable of being closed from a safe position outside the space concerned in the event of a fire occurring in the space in which such the tanks are situated. (SOLAS 2004 II-2/4.2.2.3.4)

The controls for remote operation of the valve for the emergency generator fuel tank shall be in a separate location from the controls for remote operation of other valves for tanks located in machinery spaces. (SOLAS 2004 II-2/4.2.2.3.4)

11.4.5. Where an emergency generator is not fitted, are engine room emergency batteries in good order and fully charged? (Yes/No/Not Seen/Not Applicable)

Note: The emergency batteries must supply the designed power load for up to 18 hours.

11.4.6. Is all electrical equipment including junction boxes and cable runs in good order? (Yes/No/Not Seen)

11.4.7. Are switchboards free of significant earth faults? (Yes/No/Not Seen/Not Applicable)

Note: Class rules require a minimum insulation resistance of 1 megohm (1 million ohms). Good practice suggests that a much higher standard, as near to infinity as possible should be aimed for.

11.4.8. Are emergency electrical power supplies fully operational? (Yes/No/Not Seen/Not Applicable)

5. Emergency steering

11.5.1. Is the steering gear/steering compartment(s) free from defects? (Yes/No/Not Seen)

11.5.2. Has the emergency steering arrangement been tested within the past three months and are the results recorded? (Yes/No/Not Seen/Not Applicable)

Emergency steering drills shall take place at least once every three months in order to practise emergency steering procedures. These drills shall include testing of direct local control arrangements.

11.5.3. Are emergency steering changeover procedures clearly displayed locally and in the wheelhouse? (Yes/No/Not Seen/Not Applicable)

11.5.4. Are officers familiar with the operation of the steering arrangement in the emergency mode? (Yes/No/Not Seen/Not Applicable)

All ship's officers concerned with the operation and/or the maintenance of steering gear shall be familiar with the operation of the steering systems and with the procedures for changing from one system to another. (SOLAS V/26.3.2)

Note: The opportunity should be taken if possible to request that an officer demonstrates the operation of the emergency steering arrangement.

11.5.5. Where applicable, is the steering gear emergency reserve tank fully charged? (Yes/No/Not Seen/Not Applicable)

For conventional steering gear: A fixed storage tank shall be provided having sufficient capacity to recharge at least one power actuating system including the reservoir. (SOLAS II-1/29.12.3)

Note: This may not necessarily mean a full tank. A minimum level to comply with these requirements should have been established.

11.5.6. Are the arrangements for the provision of heading information adequate? (Yes/No/Not Seen/Not Applicable)

Ships with emergency steering positions shall at least be provided with a telephone or other means of communication for relaying heading information to such positions. (SOLAS 1974 V/12(f) and SOLAS 2004 V/19.2.1.9)

In addition, ships of 500 gt and upwards constructed after 1st February 1992 shall be provided with arrangements for supplying visual compass readings to the emergency steering position. (SOLAS 74 V/12(f) and SOLAS 2004 V/19.2.5.2)

11.5.7. Are communication arrangements with the bridge satisfactory? (Yes/No/Not Seen/Not Applicable)

Check that the arrangements take into account noise levels within the space.

11.5.8. Is there a means for indicating the rudder angle or thruster direction at the emergency steering position? (Yes/No/Not Seen/Not Applicable)

Thrusters include azimuth thrusters and water jets.

11.5.9. Is access to the emergency steering controls unobstructed? (Yes/No/Not Seen/Not Applicable)

11.5.10. In conventional steering compartments, are suitable handrails, gratings or other non-slip surfaces provided? (Yes/No/Not Seen/Not Applicable)

The steering gear compartment shall be provided with suitable arrangements to ensure working access to steering gear machinery and controls. These arrangements shall include handrails and gratings or other non-slip surfaces to ensure suitable working conditions in the event of hydraulic fluid leakage.

6. Additional comments

11.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

12. General appearance and condition

1. Hull, superstructure and external weather decks

12.1.1. Is the general condition, visual appearance and cleanliness of the hull satisfactory? (Yes/No/Not Seen)

Is the hull free of oil staining, extensive coating breakdown or excessive marine growth?

12.1.2. Are hull markings clearly indicated and correctly placed? (Yes/No/Not Seen)

The ship's identification number shall be permanently marked:

- in a visible place either on the stern of the ship or on either side of the hull, amidships port and starboard, above the deepest assigned load line or either side of the superstructure, port and starboard or on the front of the superstructure; and,
- in an easily accessible place either on one end of the transverse bulkheads of the machinery spaces, or on one of the hatchways or, in the case of tankers, in the pump room. (SOLAS XI-1/3.4)

The permanent marking shall be plainly visible, clear of any other markings on the hull and shall be painted in a contrasting colour. (SOLAS XI-1/3.5.1)

The permanent marking referred to in paragraph 1 shall be not less than 200 mm in height. The permanent marking referred to in paragraph 2 shall be not less than 100 mm in height. The width of the marks shall be proportionate to the height. (SOLAS XI-1/3.5.2)

The requirement for the ship's identification number shall be complied with not later than the first scheduled dry-docking after 1st July 2004 for ships constructed before that date. (SOLAS XI-1/3)

Note: The following should also be clearly indicated, where applicable:

- the vessel/unit's name;
- loadlines;
- draft marks;
- thruster warnings;
- tug push points.

12.1.3. Is the general condition, visual appearance and cleanliness of the external decks satisfactory including non-slip surfaces in working areas and access routes? (Yes/No/Not Seen)

12.1.4. Does the structure include arrangements designed to minimise hazards associated with falls from heights? (Yes/No/Not Seen)

e.g. rails, platforms, back-scratchers

12.1.5. Is the general condition of service pipework satisfactory and is it free from significant corrosion and pitting and soft patches or other temporary repairs? (Yes/No/Not Seen/Not Applicable)

Notes: The following deck pipework, should be examined, particularly on the underside, for external indications of corrosion and for patching or accelerated wear caused by rope abrasion:

- hydraulic and pneumatic pipework;
- fire mains and associated fittings;
- deck steam lines;
- compressed air lines;
- bulk cargo lines.

Pipe securing arrangements should be intact and permit free movement of the pipes as necessary.

Check the condition of pipe stands, clamps, supports and expansion arrangements?

12.1.6. Are all deck openings, including watertight doors and portholes, in a satisfactory condition and capable of being properly secured? (Yes/No/Not Seen)

Are all watertight doors operating correctly, with seals in good condition?

12.1.7. Are there documented procedures for the operation of powered watertight doors which require doors to be left in the normally closed position? (Yes/No/Not Seen/Not Applicable)

All personnel should have received instruction in the operation.

Signs giving operating instructions should be posted on either side of the doorway

12.1.8. Are all watertight doors included in the planned maintenance system? (Yes/No/Not Seen/Not Applicable)

12.1.9. Are all watertight door position indicators operating correctly? (Yes/No/Not Seen/Not Applicable)

Indicators should be available at remote operating and control stations.

12.1.10. Are all cable transits and bulkhead penetrations correctly assembled? (Yes/No/Not Seen)

If the vessel/unit is DP3, cable transits should be double-glanded.

12.1.11. Is a programme in place that covers the periodic inspection of all tanks, void spaces, chain lockers and cofferdams, and their coatings?

(Yes/No/Not Seen)

e.g. bulk cargo tanks, bulk powder silos and tanks for cargo fresh water, drill water, mud, brine, fuel, NLS and methanol.

12.1.12. Are fuel, ballast and other space vents and air pipes in a satisfactory condition, marked to indicate the spaces they serve and does visual evidence indicate regular maintenance? (Yes/No/Not Seen)

Note: Vent heads should be regularly dismantled to prove that flame screens, where fitted are clean and in a satisfactory condition and that the closing device which prevents the ingress of water is also in good condition and operating correctly.

12.1.13. Is the general condition, visual appearance and cleanliness of the superstructure satisfactory? (Yes/No/Not Seen)

2. Electrical equipment

12.2.1. Is deck lighting adequate? (Yes/No/Not Seen)

Note: The level of deck lighting should be adequate to allow for:

- safe access to the various areas;
- the safe use of mooring equipment;
- monitoring of the deck area;
- monitoring of all deck areas and the adjacent surrounding areas to prevent unauthorised access.

12.2.2. Is the general condition of electrical equipment, including light fittings, conduits and wiring, satisfactory? (Yes/No/Not Seen)

3. Internal spaces

12.3.1. Are internal spaces and storerooms clean and tidy? (Yes/No/Not Seen)

12.3.2. Are the forecabin space, rope stores and locker stores free of water? (Yes/No/Not Seen/Not Applicable)

4. Accommodation areas

12.4.1. Is the accommodation clean and tidy? (Yes/No/Not Seen/Not Applicable)

Free of animal/insect infestation? Check procedures are in place to manage infestations?

12.4.2. Are alleyways free of obstructions and exits clearly marked? (Yes/No/Not Seen/Not Applicable)

12.4.3. Are public spaces, including smoke rooms, mess rooms, sanitary areas, food storerooms, food handling spaces, refrigerated spaces, galleys and pantries clean, tidy and in a hygienically satisfactory condition? (Yes/No/Not Seen/Not Applicable)

Notes: Unburned fuel or fatty deposits in galley ranges, within flue pipes and in the filters of galley extraction fans can cause fire and must be maintained in a clean condition.

Oil and deep fat fryers should be fitted with thermostats to cut off the electrical power and prevent overheating.

12.4.4. Are laundries and drying rooms free of accumulations of flammable materials that could constitute a fire hazard? (Yes/No/Not Seen/Not Applicable)

Dryers to be free from excessive lint build up.

12.4.5. Is the level of accommodation lighting satisfactory? (Yes/No/Not Seen/Not Applicable)

Check whether a lighting survey has been undertaken and randomly test emergency lights.

12.4.6. Is the condition of electrical equipment in the accommodation satisfactory? (Yes/No/Not Seen/Not Applicable)

No jury rigged electrical appliances or overloaded sockets.

12.4.7. Are personnel alarms in refrigerated spaces in good order and regularly tested? (Yes/No/Not Seen/Not Applicable)

State frequency of testing (e.g. monthly)

5. Additional comments

12.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

13. Operations in ice and severe sub-zero conditions

1. General

13.1.1. Does the vessel/unit have a formal risk assessment process in place and are risk analysis conducted prior to each new operation in ice? (Yes/No/Not Seen)

13.1.2. Does the vessel/unit have operating procedures that address winterisation issues? (Yes/No/Not Seen/Not Applicable)

State whether vessel has a winterisation notation issued by Class.

13.1.3. Does the vessel/unit's stability booklet take into consideration the effects of ice accretion? (Yes/No/Not Seen)

13.1.4. Do the deck working areas have adequate shelters for crew working in exposed areas or does the vessel have a policy for frequent breaks of deck watch to rest inside? (Yes/No/Not Seen)

Crew should not be exposed to excessive cold and wind chill conditions.

13.1.5. Do operating procedures specify the lowest sustained operating temperature for the vessel/unit? (Yes/No/Not Seen)

Wind chill factor should be taken into account when specifying limits.

13.1.6. Do operating procedures specify the maximum thickness of ice that the vessel/unit may operate in? (Yes/No/Not Seen)

13.1.7. Does the vessel/unit have an emergency plan and enough resources on board in the event of an emergency and/or an extended ice entrapment? (Yes/No/Not Seen)

The vessel should have sufficient and reliable facilities to maintain a life sustaining environment in case of a prolonged entrapment in ice or an emergency where the vessel loses propulsion. This would include emergency rations and stores, emergency source of power and fuel, etc.

2. Winterisation

13.2.1. Is the vessel/unit provided with anti-icing and de-icing equipment and/or heat tracing and are these systems in good order? (Yes/No/Not Seen)

De-icing equipment includes: steam generators, steam hosing, hot water. Pumps used for de-icing should be provided with redundant arrangements. Manual equipment should also be available such as mallets, shovels, axes or even a snow blower. Storage of de-icing equipment should be easily accessible and if in exterior compartments protected from freezing.

Anti-icing methods may include covers with or without heating, electric trace wiring, heating coils, steam generators, ice repellent coatings or self draining piping.

13.2.2. Is all mooring and anchoring equipment adequately protected? (Yes/No/Not Seen/Not Applicable)

Winches, wires and ropes should have canvas covers to stop ice accretion. The clutches and engaging gears of winches should be well protected by substantial coatings of grease.

13.2.3. Is ancillary deck machinery, including cranes, adequately protected? (Yes/No/Not Seen)

13.2.4. Are all fluid systems (e.g. firemain, fresh water lines, drill water) that are prone to freezing capable of being fully drained? (Yes/No/Not Seen)

Care should be exercised in the design of such systems to avoid fluid traps and to ensure that drain plugs are fitted and readily accessible. Check that procedures are in place to readily return drained systems to operating status.

13.2.5. Are there adequate supplies of salt/sand on board to spread on walkways/gangways? (Yes/No/Not Seen)

Needed to protect crew from slips and falls on icy deck

3. HSE and safety equipment

13.3.1. Are adequate supplies of protective clothing and thermal insulating materials provided for all persons on board? (Yes/No/Not Seen)

Mitts, gloves, cold weather coveralls, head and eye protection to reduce loss of body heat, foot protection which is slip-resistant and insulated.

13.3.2. Are immersion suits provided for all personnel on board? (Yes/No/Not Seen)

13.3.3. Are all means of escape from the accommodation or interior working spaces free from being rendered inoperable by ice accretion or by malfunction due to low external ambient air temperatures? (Yes/No/Not Seen)

13.3.4. Are all escape routes built to dimensions to allow for persons wearing suitable protective clothing to pass unhindered? (Yes/No/Not Seen)

13.3.5. Is the temperature rating of the liferafts consistent with the minimum temperature the vessel/unit is capable of operating in? (Yes/No/Not Seen)

Life rafts need to be able to be launched in cold conditions. Release mechanisms should be heat traced or assured of operation down to min temp the vessel is operating in

13.3.6. Are the lifeboats and quick release gear suitable for the extremes of temperature that the vessel/unit is capable of operating in? (Yes/No/Not Seen/Not Applicable)

Lifeboats should be enclosed and heated.

13.3.7. Are survival craft engines equipped with means to ensure the engines start readily when required at the minimum anticipated operating temperature and have fuel suitable for use at the anticipated operating temperature? (Yes/No/Not Seen/Not Applicable)

13.3.8. Are fire extinguishing systems designed and located so that they are not made inaccessible or inoperable by ice or snow accumulation or low temperature. such that precautions should be taken to prevent nozzles, piping and valves of any fire-extinguishing (Yes/No/Not Seen/Not Applicable)

Precautions should be taken to prevent nozzles, piping and valves of any fire-extinguishing system from becoming clogged by impurities, corrosion or ice build-up.

Unprotected water and foam extinguishers are rated for safe operations to +1C. If protected with ethylene glycol they are rate downward to -10C; if the additive "Kerrol" or equivalent is used they are rated for use down to -20C

13.3.9. Are fire hydrants and isolating valves for the fire mains accessible and, if exposed to the weather, adequately protected from freezing spray and icing? (Yes/No/Not Seen/Not Applicable)

13.3.10. Are the closing apparatus for ventilation inlets and outlets designed and located to protect from ice or snow accumulation that could interfere with the effective closure of such systems? (Yes/No/Not Seen)

4. Crew experience

13.4.1. Do procedures require the crew to receive familiarisation training prior to operations in severe sub-zero temperatures? (Yes/No/Not Seen)

13.4.2. Are ice operating and training manuals available onboard including procedures in place detailing operations with ice breakers? (Yes/No/Not Seen)

13.4.3. Does the vessel have a minimum of at least one Ice Navigator? (Yes/No/Not Seen/Not Applicable)

Ice Navigator is an individual that is in addition to being qualified under the STCW Convention, is specially trained and otherwise qualified to direct the movement of a ship in ice-covered waters. This should include documented evidence of having completed on the job training and may include simulation training. IMO recommends at least one be on board when operating in Polar Waters. OCIMF briefing paper for sub-zero regions recommends 4 years of ice experience at a minimum.

5. Bridge equipment

13.5.1. Does the vessel have sufficient heated wheelhouse windows? (Yes/No/Not Seen/Not Applicable)

In cold weather need to be able to prevent build up of ice on windows.

13.5.2. Are the bridge windows fitted with sun screens or protection from the glare of the sun? (Yes/No/Not Seen/Not Applicable)

Need some kind of protection of the effects of the sunlight light on the ice.

13.5.3. Are bridge wings enclosed or protected to facilitate watchkeeping and conning? (Yes/No/Not Seen/Not Applicable)

State whether bridge wings are enclosed or protected.

13.5.4. Does the vessel have searchlights that are suitable for operation in ice and snow? (Yes/No/Not Seen)

Searchlights need to be powerful enough to observe ice around the vessel/unit.

13.5.5. Does the vessel have a minimum of one ice radar and is it fully operational?? (Yes/No/Not Seen/Not Applicable)

Ice radar is a 3 cm radar with software that enhances the image so that the ice cover can be assessed.

13.5.6. Does the vessel have equipment for receiving ice data? (Yes/No/Not Seen/Not Applicable)

Vessel should have INMARSAT equipment capable to receive ice charts. Fax or Internet

6. Hull, machinery and engine room

13.6.1. Are steam heating and back flushing arrangements provided to all sea chests to deal with blockages/ice slurry? (Yes/No/Not Seen)

Sea chests should be designed to deal with the potential ingestion of slush ice and shall include back flush arrangements or similar to deal with blockage from seaweed and other materials. Sea chests should incorporate a back flush arrangement (inclusive of re-circ of hot water) or similar to deal with blockages/ice slurry.

13.6.2. Are there alternative sea chests at differing drafts? (Yes/No/Not Seen)

Vessel operating in ice should have one side in-take sea chest and one bottom in-take

13.6.3. Is there a back up heating system or protective measures in all areas that contain essential equipment or systems required for the safe operation of the vessel? (Yes/No/Not Seen)

Upon failure of the primary heating system there should either be an independent heat source or the equipment should be fabricated from materials that will not make it susceptible to brittle fractures under the anticipated loads and temperatures.

13.6.4. Are the emergency batteries for communications equipment and those stored in deck boxes properly stored, secured and protected from freezing conditions? (Yes/No/Not Seen/Not Applicable)

Emergency batteries should be protected from extreme low temperatures and the should be secured so that they do not have excessive movement caused during ice-transiting operations. Vents to battery lockers should be designed so that ventilation is not restricted by the accumulation of ice or snow?

13.6.5. Does the vessel/unit have a means of preventing ballast, potable water and drill fluids from freezing and is it operating correctly? (Yes/No/Not Seen)

Heating coils in ballast tanks or other method, such as bubblers, for prevention of ice

13.6.6. Is bunker tank heating provided and is it fully operational? (Yes/No/Not Seen)

13.6.7. Do engineering procedures clearly define the diesel oil specification for use in sub zero environment ? (Yes/No/Not Seen/Not Applicable)

13.6.8. Are main machinery air intakes protected from clogging by snow? (Yes/No/Not Seen)

13.6.9. Are main engines capable of starting in low outside temperatures? (Yes/No/Not Seen/Not Applicable)

7. Additional comments

13.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

14. Helicopter operations

1. General

14.1.1. Does the vessel/unit have an approved helideck? (Yes/No/Not Seen)

Helideck must be Approved/Certificated by CAA; FAA; or equivalent. Specify applicable jurisdiction/region for certification in Comments

14.1.2. If not approved, is there documentary evidence to confirm that the helideck meets the requirements of CAP437? (Yes/No/Not Seen/Not Applicable)

Add regions/jurisdictions previously worked as a Comment

14.1.3. Is the helideck available for use at all times? (Yes/No/Not Seen)

This does not include delays due to readiness of crew, weather or similar reasons.

If masts have to be dropped, helideck "wings" folded out, or other issues which would prevent an aircraft landing, an Observation should be made.

14.1.4. If the vessel/unit has re-fuelling facilities, are they certified? (Yes/No/Not Seen/Not Applicable)

14.1.5. Are all appropriate publications available on board? (Yes/No/Not Seen)

These may include, for example:

- CAP 437;
- IATA/ICAO IAMSAR Manual;
- IATA Regulations;
- ICAO Heliport Manual;
- ICAO Convention on International Civil Aviation - Annex 14 Vol II (Heliports) and Annex 6 Part III (International Operations - Helicopters);
- IMO Resolution A.855(20) Standards for On-board Helicopter Facilities

2. Operational procedures

14.2.1. Do on-board marine operations procedures address helicopter operations? (Yes/No/Not Seen)

The operations procedures should include strict controls on work authorisation/management and communication protocols between crane drivers, deck workers, helideck staff, navigators, engine room staff and any other groups whose work may affect equipment moves, atmosphere changes, or personnel proximity to helideck. Normally, the HLO should have working authority to control. Procedures should also include specifying control of heliops when meteorological conditions change substantially.

14.2.2. Do helideck crew have appropriate PPE? (Yes/No/Not Seen)

Appropriate PPE and identification tabards should be provided and used. This would normally include HLO and HDAs wearing flame retardant overalls or proximity suits with safety helmet/visor or goggles, and the fire monitor crew with the same dress.

14.2.3. Are procedures in place for checking helideck, net tension, and inspecting helideck for debris prior to aircraft arriving? (Yes/No/Not Seen)

Procedures should include issues such as:

- checking that helideck is taut (not possible to lift any part more than 250mm clear of deck, with a vertical pull by hand);
- all lighting should be functioning (perimeter and floodlights);
- perimeter nets should not be taut;
- helideck needs to be checked for loose objects and any such items removed.

14.2.4. Are procedures in place for controlling passenger access/egress at helideck? (Yes/No/Not Seen)

All passenger routes to/from helideck should be well marked and final access to helideck should be positively controlled by helideck crew (e.g. gate or traffic light). Arriving passenger direction signs should be clear and detailed in what to do/not to do/where to go.

3. Crew training

14.3.1. Are formally qualified Helicopter Landing Officers (HLOs) available on board as required? (Yes/No/Not Seen)

Formal training/certification should be demonstrable.

14.3.2. Are formally qualified Helideck Assistants (HDAs) available on board as required? (Yes/No/Not Seen)

Formal training/certification should be demonstrable.

14.3.3. Are all heli-ops radio users trained and appropriately certificated? (Yes/No/Not Seen)

If no formal qualifications held, users should be able to demonstrate some on-board training of expected radio user protocols and practices

14.3.4. Is pitch, roll, heave and weather data collated by trained and experienced personnel? (Yes/No/Not Seen)

Weather observing, report assessment, movement monitoring should be conducted by trained and experienced personnel, in most cases the navigating officers on the vessel/unit.

4. Emergency response

14.4.1. Is the vessel/unit equipped with dedicated airband transceivers? (Yes/No/Not Seen/Not Applicable)

Must allow both operating frequency use for normal communicating with the aircraft and watch/emergency frequencies for flight watch and following.

14.4.2. Does the vessel/unit have dedicated flight following/watch personnel? (Yes/No/Not Seen)

Qualified radio operating personnel should be available. Formal flightwatch/following instructions and records should be confirmed in place and correctly logged.

14.4.3. Is the vessel/unit fitted with appropriate navigation beacons? (Yes/No/Not Seen)

Although (D)GPS or equivalent is commonplace, a vessel/unit should also have available a means of transmitting a non-directional beacon in the Aviation waveband, acceptable to the Authorities in the vessel/unit's vicinity.

14.4.4. Is the helideck firefighting and emergency equipment in good order and available for immediate use? (Yes/No/Not Seen)

Equipment should include an AFFF foam system to helideck and foam monitors designed to knock out a fire within 30 seconds of activation; fireman's outfits (including breathing apparatus); crash box (hammers, bolt-croppers, hatchets, etc.); powder and CO2 extinguishers (including a unit with lance to reach engine intakes, should that be required by pilot)

5. Passenger/cargo management

14.5.1. Is there a formal procedure for briefing passengers? (Yes/No/Not Seen)

Briefing details/CD's of helicopter types should be available to include: danger areas; boarding/exiting procedure; emergency procedures; use of seat belts; no loose objects/clothing; prohibited goods; documentation needs, etc.,

14.5.2. Are there facilities to store Helicopter Transit Suits at the muster station, or has the vessel enacted procedures that require personnel to collect their Transit Suit prior to mustering? (Yes/No/Not Seen/Not Applicable)

If procedural option, Inspector should request records of muster trials to ensure that access/egress is not excessively compromised. Observation should be made if no such planning appears to have been undertaken

14.5.3. Are baggage scales formally calibrated and fully operational? (Yes/No/Not Seen)

Check calibration records for consistency. Sample freight/baggage manifests for completeness

14.5.4. Is there a dedicated heli-lounge/reception area for handling incoming and outgoing passengers? (Yes/No/Not Seen)

Control of passengers needs to be demonstrated to ensure offsigners are all loaded out and on-signers need to be checked and briefed.

14.5.5. Is there a secure area for handling/storing checked freight/baggage? (Yes/No/Not Seen)

Should be under the direct control of one appointed person - aspects of this may come under the vessel/unit's Security Plan, which the Inspector should be made aware of, but review of the SSP is not permitted.

6. Additional comments

14.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.

15. DP operations

1. General

15.1.1. Does the vessel have on board a copy of the most recent FMEA ? (Yes/No/Not Seen/Not Applicable)

Record the date of the report and authors.

Record the Class Notation of the DP system.

15.1.2. If the DP system is not classed, has the FMEA been assessed against IMO MSC.Circ 645? (Yes/No/Not Seen/Not Applicable)

15.1.3. Do the failure modes meet IMO MSC Circ.645 with 'fail as set, or fail to zero'? (Yes/No/Not Seen)

State failure mode.

15.1.4. Is the FMEA less than 5 years old? (Yes/No/Not Seen/Not Applicable)

15.1.5. Is a record of proving trials available on board? (Yes/No/Not Seen/Not Applicable)

15.1.6. Have the recommendations (if any) from the proving trials been addressed? (Yes/No/Not Seen/Not Applicable)

15.1.7. Does the vessel/unit have on board a copy of the most recent DP trial report? (Yes/No/Not Seen/Not Applicable)

Record the trial data report authors.

15.1.8. Are the annual DP trials scheduled within a year +/- 3 months of the anniversary date? (Yes/No/Not Seen)

If trials are undertaken on a continuous basis, answer 'No' and make an Observation.

15.1.9. Have recommendations from the DP trial report been addressed and closed out as required? (Yes/No/Not Seen/Not Applicable)

15.1.10. Have all personnel involved in DP operations read and understood the FME(C)A? (Yes/No/Not Seen)

Confirm that the FME(C)A is written in a language appropriate for the DPOs, ETOs, engineers and electricians.

15.1.11. If modifications have been undertaken, has the FME(C)A been up-dated and the modifications proven by testing? (Yes/No/Not Seen/Not Applicable)

2. Operations

15.2.1. Has station keeping been incident-free in the last 12 months? (Yes/No/Not Seen)

If 'No', record details of any incidents.

15.2.2. Does the vessel/unit use the IMCA Incident reporting system? (Yes/No/Not Seen)

IMCA M 103 Rev 1, Appendix 1

15.2.3. Does the vessel/unit carry out risk assessments for specific operations? (Yes/No/Not Seen)

Including SIMOPS, external loads such as tuggers, relative/absolute position referencing, weather related contingencies, etc.

15.2.4. Is the DP control console located so that the DPO can also observe the controls, the external environment and the working operations of the vessel/unit? (Yes/No/Not Seen)

If 'No', state whether CCTV is utilised.

IMCA M 103 Rev 1- 1.6.5 Position Control

IMCA M 103 Rev 1- 1.2 Scope of Dynamic Positioning

15.2.5. Are manual controls and emergency stops located within easy reach? (Yes/No/Not Seen)

15.2.6. Can the controls for position reference systems be accessed within easy reach of the DP control station? (Yes/No/Not Seen)

15.2.7. Does the vessel/unit have a comprehensive DP operating manual on board? (Yes/No/Not Seen)

IMO Resolution 645 Operational Requirement

Confirm that the manual is written in a language appropriate for the DP operators.

State whether manual has been reviewed by Class.

15.2.8. Have all personnel involved in DP operations read the manual and demonstrate an understanding of its contents? (Yes/No/Not Seen)

15.2.9. Are checklists in place to cover bridge, engine room and electrical systems operation e.g. when mobilising, 500 m safety zone entry (DP set-up), DPO and engine room periodical changeovers? (Yes/No/Not Seen)

Includes auto pilot, redundancy consideration, normally closed crossovers, switchable power supplies, generators, thrusters, position reference systems, environmental conditions etc. for both bridge and engine room.

15.2.10. Are DP Capability Plots in place to cover the normal and expected operations? (Yes/No/Not Seen)

15.2.11. Are project related factors such as pipelay loads considered? (Yes/No/Not Seen)

IMCA M 140 - Specification for DP Capability Plots

15.2.12. Are DP footprints regularly recorded and compared against previous footprints and the DP Capability Plots? (Yes/No/Not Seen)

15.2.13. Is a defined contingency matrix in place to cover weather limits and the cessation of operations? (Yes/No/Not Seen)

Based upon the DP Capability Plots.

15.2.14. Are Well Specific Operations Guidelines (WSOG) in place and utilised? (Yes/No/Not Seen/Not Applicable)

Are there defined limits set for yellow and red alert?

Are termination of operations defined?

Field Specific Operations Guidelines (FSOG) or other may be applicable for the type of operations.

3. Equipment

15.3.1. Is the Dynamic Positioning equipment on board in good order? (Yes/No/Not Seen)

Record the date of the last maintenance visit and review the report. Note any recommendations/deficiencies.

IMCA M 103 Rev 1- 1 Principles for all DP Vessels

15.3.2. Are all position reference systems in good order? (Yes/No/Not Seen)

15.3.3. Are the preferred position reference systems defined in the operations manual and do not conflict with project requirements? (Yes/No/Not Seen)

15.3.4. Are relative and/or absolute position references considered and defined for operations? (Yes/No/Not Seen)

15.3.5. Are there manual changeover switches fitted to acoustics (or other) to allow selection of specific Gyros and vertical reference units? (Yes/No/Not Seen/Not Applicable)

Check that the consequences of switching sensors are considered.

15.3.6. Are the position reference systems provided with a schematic to cover power supply, external inputs/outputs and wiring diagrams? (Yes/No/Not Seen)

15.3.7. Are the offsets maintained in a single file? (Yes/No/Not Seen)

Check that file is readily available to DPO's.

15.3.8. Does each thruster have an independent emergency stop that is well protected against inadvertent operation? (Yes/No/Not Seen)

IMCA M 103 Rev 1, 1.6.1 Thrust units

State date that emergency stops were last tested.

15.3.9. Are the emergency stops alarmed against failure? (Yes/No/Not Seen)

15.3.10. Does vessel/unit have a data recorder that records all DP parameters including operator keystrokes? (Yes/No/Not Seen)

IMCA M 103 Rev 1- 1.5 Operation, Training and Documentation Best practice for vessels engaged in sensitive DP operations.

If a date recorder is not fitted, confirm that procedures are in place for securing relevant data in the event of a DP incident. Does this include a timeframe where data is held for only a limited period?

15.3.11. Is there a procedure for the regular checking of the secure power supply systems? (Yes/No/Not Seen/Not Applicable)

IMCA M 103 Rev 1- 1.6.5 Position Control

15.3.12. If vessel/unit is DP class 2 or 3, does the DP system have a continuous analysis function checking that in terms of thruster and power vessel/unit can maintain position after the worst case failure? (Yes/No/Not Seen/Not Applicable)

15.3.13. Are all DP operations conducted with the bus bars separated in 'redundancy protected mode'? (Yes/No/Not Seen)

Appropriate warning notices should be placed on switchboard controls.

15.3.14. Do the operational procedures include guidance on number of generators to be running at different power loads and are DPOs and engineers familiar with them? (Yes/No/Not Seen)

Guidance should include direction on optimum generator load and recommended 'spinning reserve' when variable loads are expected in critical position-keeping situations.

15.3.15. Are consequence analysis alarms used as input to the contingency matrix? (Yes/No/Not Seen/Not Applicable)

15.3.16. Is the DP system included within the Planned Maintenance System (PMS)? (Yes/No/Not Seen)

Including all position reference systems, UPSs and sensors.

4. Competence

15.4.1. Are the officers suitably qualified for DP Operations? (Yes/No/Not Seen)

Confirm DP certification and experience from log books and questions. Confirm that Engineers and ETOs have appropriate training/guidance on how to operate/maintain plant when in DP mode.

15.4.2. Do all key personnel on board comply with the IMCA minimum requirements for experience and training? (Yes/No/Not Seen)

IMCA M 117 Rev 1- The training and Experience of key DP personnel

15.4.3. Is there an Electronic Technician onboard with approved training on the DP system? (Yes/No/Not Seen)

5. Additional comments

15.99. Additional Comments (Text/Not Applicable)

If the Inspector has comments in respect of the subject matter covered by the Chapter additional to those which the Inspector may make in response to the specific questions in the Chapter, the Inspector should include such additional comments in this section.
