



**Offshore Vessel Inspection Database (OVID)
Programme**

**Mobile Offshore (Drilling) Unit Inspection
Questionnaire,
Third Edition (MO(D)U3)**

29 May 2025

7302

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Section 1

1.1 History of the OVID Programme

In 2009, OCIMF in conjunction with the Oil and Gas Producers (OGP) organisation started the development of the Offshore Vessel Inspection Database (OVID) for launching in early 2010, which will enable OCIMF members to submit their ship inspection reports to OCIMF for distribution to OCIMF members and certain qualifying non-OCIMF members.

Participation in the programme, as either an inspecting OCIMF Member or a programme recipient, was strictly voluntary and each programme recipient determines independently how to evaluate the information contained in the reports received from OCIMF.

Under the OVID Programme, the operator of any offshore ship that is the subject of a report was given a copy of that report and the opportunity to submit written comments relating to the report, to both the inspecting OCIMF Member and to OCIMF. The written comments submitted by the vessel operator forms part of the downloaded report.

Report recipients access the OVID System Index by computer, and this permits the index to be viewed or downloaded. Any authorised recipient can download a report on any vessel at cost determined by the OCIMF Executive Committee, which may be adjusted from time to time.

1.2 Revisions to the Programme

The second edition of the Offshore Vessel Inspection Questionnaire (OVIQ2) was launched on 1 July 2015. The third edition of the Offshore Vessel Inspection Questionnaire (OVIQ3) was launched on 17 September 2018. This document details version 7300 of the OVIQ4 template and was launched on 21 April 2025.

1.3 Uniform Vessel Inspection Procedure

The programme requires that participating submitting companies follow a uniform Vessel Inspection Procedure. This procedure has an **Inspection Element** and a **Report Element**.

The **Inspection Element** uses a series of detailed inspection questionnaires as appropriate for the type of vessel inspected. These questionnaires address issues associated with safety and pollution prevention. Inspectors who are employed or contracted by submitting companies must answer all these questions.

Questions are, in many cases, accompanied by guidance notes and/or references to source documents. Their purpose is to aid the Inspector's response.

The **Report Element** is developed from the completed electronic questionnaire that is submitted by the Inspector, either directly to the OVID web site, or to the submitting company for further processing prior to transmission to the vessel operator and to OVID.

Section 2

2.1 The Offshore Vessel Inspection Questionnaires and OVIQ Computer Programmes

The third edition of the Offshore Vessel Inspection Questionnaires and their accompanying Inspection Reports were introduced in September 2018. The OVID system is comprised of two fundamental elements: -

These are:

1. The **Offshore Vessel Inspection Questionnaire (OVIQ)**, which is an inspection document which relates to the operations and procedures onboard the vessel. The OVID software has a 'Variant wizard' which generates a different question set applicable to the specific type of vessel being inspected. Currently there are 31 different vessel and operational variants.
2. The **Offshore Vessel Particulars Questionnaire (OVPQ)**, which is a document that is completed by the vessel operator and OCIMF does not warrant the accuracy of any information contained within the OVPQ. The OVPQ is a detailed questionnaire of the permanent or semi-permanent characteristics of the vessel. (LOA, height, tank capacities etc.), and also records details of recent operational history. OCIMF does not warrant the accuracy of any information contained within the OVPQ and it is the operators' responsibility to update this document regularly.

Section 3

3.1 Using the OVID Vessel Inspection Questionnaires (“OVIQs”)

The inspection questionnaires used in this programme contain a series of questions related to safety and pollution prevention applicable to the type of vessel that is inspected. These questions are consecutively numbered and are logically grouped into separate chapters.

Each chapter contains a series of questions to be answered by the inspector. Questions **may** be accompanied by guidance, namely:

1. Guidance notes to inspectors,
2. Reference source(s) citing regulation(s) or industry guidelines pertaining to questions; and
3. An indicator to identify issues when an inspector comment is mandatory.

The above-mentioned guidance, regulatory/industry references amplify the questions, and these are provided to assist the inspector to answer the questions.

If the guidance and references lead the inspector to conclude that the question should be answered positively, the box “**Yes**” in the OVIQ computer programme should be checked. On the other hand, if the guidance and any reference sources indicate to the inspector that the question should be answered negatively, the “**No**” box should be checked. Where appropriate, the “**Not Applicable**” box should be ticked.

The inspector **must** respond to all the questions appropriate to the type of vessel being inspected.

Failure to do this will mean that the inspection report cannot be transmitted to the OVID Internet site for processing by the Submitting Company who commissioned the inspection.

The inspector **must** insert an Observation when responding to any question where the response box is marked “**No**”. The Observation **must specify and explain** the reason why a negative response is made. The “**Not Applicable**” response is treated in the same way as a “**Yes**” response and there is no requirement for the reason to be made in the Observations section accompanying the question. However, if, in the inspector’s judgment an explanatory comment is necessary, the inspector may make such comment in the “**Other Comments**” section accompanying the question **provided such comment makes amplification to assist the understanding of a report recipient as to an issue associated with a specific question.** In some cases, where the type of vessel being inspected results in one or more questions being not applicable to that type of vessel, the Report Editor is programmed to automatically answer those questions “**Not Applicable**”.

For some questions, where the guidance note is highlighted, the inspector is required to provide comment as required by the highlighted section of guidance. This requirement is flagged in the printed OVIQ by bold, highlighted, italic text in the guidance notes. In the electronic Report Editor software, it is highlighted in yellow.

At the end of each chapter there is an Additional Comments section. If the inspector has additional comments in respect of subject matter that is not covered by the specific questions in the chapter, the inspector may make such comments in the Additional Comments section.

The above listed requirements are summarised below

Box	Option	Response
Y	Yes	Tick “Yes” if, in the inspector’s professional judgement assisted by the guidance (if provided), a positive response can be made to the question. If, in the inspector’s judgement the Yes response requires to be amplified with further positive comments, the inspector may record such comments in the Other Comments box. Inspectors should keep in mind, that unless an unusual situation needs to be positively described, then a “Yes” response without comment is adequate.
N	No	Tick “No” if, in the inspector’s professional judgement assisted by the guidance (if provided), a negative response should be made to the question.
NA	Not Applicable	Tick “Not Applicable” if the subject matter covered by the question is not applicable to the vessel being inspected. In some cases, the “Not Applicable” response is made automatically within the software and is subject to the type of vessel being inspected. If, in the inspector’s judgement the Not Applicable response requires to be amplified with further comments, the inspector may record such comments in the ‘Other Inspector Comments’ section that accompanies the specific question.
	Observations and Other Inspections Comments	An Observation by the inspector is required for a “No” or “Not Seen” response. Where the question specifically calls for inspector comment irrespective of how the response box is checked, such comments are required to be recorded in the “Other Inspector comments” section that accompanies the question. Inspectors are free to record comments even where a box is checked “Yes” provided such comment makes amplification to assists the understanding of a report recipient as to an issue associated with a specific question.
	Additional Comments	The Additional Comments section at the end of each chapter may be used to record comments in respect of the chapter that are additional to those which the inspector may make when responding to the specific questions.

3.2 OVIQ Availability to Operators

Vessel operators, who require copies of the questionnaires set out in this programme, may obtain them directly from the www.ocimf.org website at no cost to the vessel operator.

Section 4

Conduct of Inspections

4.1 Mandatory Inspection Requirements

The following mandatory inspection requirements must be followed by inspectors in the conduct of their shipboard inspection in order for reports to meet the requirements of the OVID Programme:

4.1.1 General Requirements

1. The inspector must introduce themselves to the Master or the Master's authorised deputy, explain the scope of the inspection and discuss the preferred order in which it will be carried out, prior to commencement of the inspection. Inspectors should co-operate fully to conduct the inspection in the order that will cause the least disruption to the vessel's operations. The inspector must be accompanied by a member of the ship's staff at all times during the course of the inspection.
2. The inspector must set a good example with respect to their communications, behaviour, own personal safety procedures whilst on board the vessel, in the terminal and must wear appropriate personal protection equipment at all times.
3. Electrical or electronic equipment of non-approved type, whether mains or battery powered, must not be active, switched on or used within any gas-hazardous or other hazardous areas. This includes torches, radios, mobile telephones, radio pagers, calculators, computers, photographic equipment and any other portable equipment that is electrically powered but not approved for operation in a gas-hazardous area. It should be borne in mind that equipment such as mobile telephones and radio pagers, if switched on, can be activated remotely and a hazard can be generated by the alerting or calling mechanism and, in the case of mobile telephones, by the natural response to answer the call. Any specific Terminal requirements must be adhered to.
4. Any Observations that the inspector intends to record in the OVIQ must be pointed out and discussed 'on site' at the time with the member of the ship's staff assigned to accompany the inspector. This ensures that the nature of the Observations is fully understood and can also avoid extended discussion at the end of the inspection.
5. On completion of the inspection, some Submitting Companies require the inspector to provide a list of the inspection findings in the form of written observations, others do not. In either case, the inspector must discuss the inspection findings with the Master or the Master's authorised deputy before leaving the vessel. Other than to prepare these observations, however, the inspector must not remain on the vessel to complete the inspection report. It is recognised that on occasions this may not be possible, especially when leaving and joining the vessel is done by helicopter on vessels doing STS operations.
6. All inspectors must take into account their own rest hours and fatigue levels when conducting inspections. 'Back to back' OCIMF inspections are discouraged, and inspectors should complete and submit the report for one vessel before commencing an inspection on another vessel.

4.1.2 Additional Requirements

In addition to the general mandatory requirements list above, the Inspector:

1. **Must** respond by entering the requested information or by checking one response box for each question.
2. **Must**, where guidance to a question is provided, consider all the guidance to determine how the question should be answered.
3. **Must** carefully consider and provide a proper response to every question.
4. **Must** use objective evidence when answering each question (the assurance of the vessel's staff is insufficient evidence or proof);
5. **Must** include an explanatory Observation in the Observation section that accompanies a question when it is answered "**No**".
6. **Must** give the factual basis and specific reasons for any opinions or subjective comments made by the inspector.
7. **Must** note any deficiencies or inspector-observed conditions, even if action was taken to address whilst the inspector was on board.
8. **Must** not use a "**Yes**" response to any question where an inspector's observation or Other inspector comment contains negative elements (if there is such negative Observation or other inspector comment then the answer to that question should be "**No**");
9. **Must not**, in any Other Inspector Comment or Additional Comments:
 - a. Include any overall or partial ship rating or indication of ship acceptability / non-acceptability;
 - b. Include any matter unrelated to the topic of the specific OVIQ chapter
 - c. Provide a summary of each chapter or summary of the inspection observations
10. **Must not** offer any comments or opinions with regard to actions to be taken in respect of any efficiencies or observed conditions noted by the inspector.
11. **Must not** at any time give any verbal indication of ship acceptability / non-acceptability.
12. **Must not** discuss or communicate by any means (verbal, written, electronic or otherwise) any findings, information gained or outcome of the inspection with any third party other than those with a legitimate involvement in the inspection process for that vessel.
13. **Must not** conduct any other inspection or be involved in the provision of any other services while conducting an OCIMF inspection.

4.2 Permitted Inspection Actions

Inspectors *may*:

- I. Include in the "Comments" section accompanying any question, inspector comments even where the question is answered with a "**Yes**" provided such comments give useful information to the report recipient;
- II. Respond to questions or provide comments on the basis of material not included in the guidance specified for the question but must note this reliance and explain reason for the reliance;
- III. Include in the "**Additional Comments**" for each chapter, any comments in respect of the subject matter not addressed by questions contained in the chapter additional to those that the inspector may make in response to the specific questions in the chapter; and
- IV. Respond to questions which are not applicable to either the vessel or its cargo by checking such questions "**Not Applicable**".

4.3 Other Inspection Requirements

1. All inspectors shall follow OCIMF Inspector Code of Ethics. This code is not intended to limit or interfere with the ethics policies or code of conduct of OCIMF member companies employing and/or contracting with inspectors.
2. Ship inspections shall not be conducted at night unless requested by the OCIMF Inspecting member. The vessel's operator must also concur that it is safe to carry out a night inspection and that this will not negatively impact the vessel's compliance with work and rest hour requirements.
3. Inspectors shall limit advance communications with vessels and vessel operators to that information necessary to arrange access and appropriate arrival to and from the vessel, or to communicate intended inspection plans. Inspectors shall not request information concerning the VIQ in advance of their arrival to a vessel. Inspectors shall not communicate with the vessel or vessel operator after completion of OCIMF inspection activities. Following an inspection all communication concerning the inspection shall be managed by the commissioning member.
4. The inspector should consider requesting that equipment be run and tested to confirm that it is in operational order and that officers and crew are familiar with its operation. The inspector must ensure that such requests do not cause delay or interfere with the safety and normal operation of the vessel and does not contradict any terminal local requirements or regulations.
5. It should be recognised that the overall objective of the inspection is to provide the user of an OVID Report with a factual record of the vessel's condition and standard of operation at the time of the inspection and, in turn, allow an assessment of the risk that use of the vessel might pose.
6. The scope of an OVID inspection is dependent on the size and complexity of the vessel, and a typical OVIQ inspection is expected to be **accomplished within an 8-10 hour period**. The inspector must plan their time accordingly and make sufficient allowances to have a suitable period of time available for the inspection. Inspectors must take into account the hours of rest requirements for the vessel's staff that must be observed and ensure that the OVID inspection does not interfere with these.
7. During the course of the inspection ballast/void tank entry is discouraged. Physical assessment of the condition of ballast tanks/void spaces etc can be made only in circumstances where the tank access hatches or plates can be removed, and the tank internals sighted from the deck. In any event, actual tank access should only be made at the specific instructions of the inspecting company, with the authority of the Master and provided that local requirements or regulations allow. In all cases, the enclosed space entry procedures set out in Operator's Management System, associated PTW and Operational Risk Management procedures / practices outlined in GOMO Chapter 4 must be strictly adhered to.
8. Travel for ship inspections on behalf of OCIMF member companies must, at all times, be conducted in a safe manner with due regard to industry best practice and any agreements between the inspector and member companies. Inspectors must ensure that they are able to safely conduct an inspection without undue fatigue.
9. OCIMF Accredited Inspectors shall declare to OCIMF any industry relationships that may or may be perceived to create influence within an OCIMF inspection programme or impair unbiased assessment during a programme inspection. Where necessary, the relationship must be declared within the inspector's profile.
10. OCIMF accredited inspectors are not permitted to carry out concurrent inspection or assurance activities during an inspection commissioned by an OCIMF member. A non-exhaustive list of prohibited behaviour:
 - An inspector shall not carry out 2 OVID inspections at the same time.
 - An inspector shall not carry out an OVID & CMID at the same time.
 - An inspector shall not carry out an OVID and any other operational assurance activity such as DP trials, FMEA Proving Trials, (or any other consultancy work) at the same time.

4.4 Submitting Company Guidance

In order to ensure a consistent and quality report, where possible, submitting companies are requested to consider the following points when planning and conducting OVIQ inspections:

1. It is recommended that the vessel is not inspected during lay up.
2. It is recommended that the vessel is inspected with a full crew complement on board
3. Vessel activity should be considered when conducting OVIQ. As such, periods of high activity such as docking and maintenance periods should be avoided if practicable
4. OVIQ should be commissioned in accordance with vessel class notation and proposed operation
5. The use of ‘Non-SOLAS’ variant is only for use on vessels **less than 500GT** which are not required to comply with SOLAS regulations
6. For vessels which fall under parallel tonnage schemes (e.g., local and international tonnage), it is expected that vessels are inspected based on international tonnage
7. The use of ‘Small Craft’ variant is intended for use on craft **100 GT** or less
8. Validation of OVIQ reports is expected to be conducted in accordance with *OCIMF Inspection Programmes Report Validation: Best Practice*.

4.5 Anonymous Reporting Scheme

1. OCIMF is committed to maintaining the highest of ethical and professional standards within Programmes to provide a foundation of trust within the industry. The Code of Conduct contains general guidelines for programme participation with the highest standards of ethics while the Inspector Code of Ethics guide conduct during an inspection
2. Programme users should be comfortable approaching OCIMF when there is concern that policies or procedures are not being upheld
3. Users who want to submit an anonymous report in confidence are encouraged to use this website, hosted by a third-party hotline provider, **EthicsPoint**. Users are encouraged to submit reports relating to violations stated in our Code of Conduct and Inspector Code of Ethics, as well as questions related to policies and procedure or even to provide positive suggestions and stories.
4. Access to the anonymous reporting scheme can be accessed through OCIMF OVID Inspector profile page or directly to <http://ocimf.ethicspoint.com>
5. NOTES
 - **EthicsPoint is NOT an Emergency Service.** Do not use this site to report events presenting an immediate threat to life or property. Reports submitted through this service may not receive an immediate response. If you require emergency assistance, please contact your local authorities.
 - EthicsPoint is not part of the inspection questionnaire validation process: Do not use this site to challenge inspection observation content, please contact the submitting company directly to discuss the applicability of question guidance

Section 5

The Distributed Report

The responses recorded in the Vessel Inspection Questionnaires (the *Inspection Element*) serve as the basis for development of the second element of the Vessel Inspection Procedure (the *Report Element*) distributed under the programme. The inspector's completed OVIQ must be reviewed by the submitting company prior to processing in the OVID system and transmission to the vessel operator.

The processed OVIQ is automatically converted into a report after the submitting company has processed it in the OVID System. The report does not replicate the pages of the Vessel Inspection Questionnaire but is distributed in abbreviated form. It consists of a conversion of the inspector OVIQ responses into a uniform report format. The report is divided into three sections as follows:

Section 1 General information

Contains the informational responses required in Chapter 1 of the OVIQ plus answers to certain questions from other OVIQ chapters where specific details or dates are required.

Section 2 Questions marked “Yes” without comment.

Lists, by index number **only**, the questions in the OVIQ which have been checked with a “Yes” response, but without inspector comment.

Section 3 Questions marked “No”, “Not Applicable” or otherwise commented upon and any chapter ending **Additional Comments**.

Contains; in their entirety, **(a)** All OVIQ questions which have been answered with a “No” response, as well as the comments made by the inspector to supplement such responses; **(b)** All other OVIQ questions which have otherwise been commented upon, together with the comment; and, **(c)** Any additional comments made at the end of the OVIQ chapters.

General information

Unit particulars

1.1.1 Name of the unit

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 Number

1.1.3 Reg number

1.1.4 VIN (Vessel Identification Number)

1.1.5 Country of registration of vessel/unit

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 Comments.

1.1.6 Gross tonnage

State if vessel/unit has not been measured.

1.1.7 Date vessel/unit delivered

1.1.8 Date of most recent major conversion, if applicable

Provide brief details of most recent major conversion.

1.1.9 Place of inspection

To provide context to the report, the inspector to make note of unit status at time of inspection (cold stacked, warm stacked, reactivation, etc) and history of unit operation in last 12 months.

1.1.10 Name of the company commissioning the inspection

1.1.11 Time the inspector boarded the vessel/unit

1.1.12 Time the inspector departed the vessel/unit

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.

1.1.13 Time taken for Inspection

Record the time taken to conduct the inspection to the nearest 5 minutes. This is the actual time of inspection and does not include the times the inspection was suspended for any reason (Lunch, PSC inspection etc.) or was conducted over two or more sessions.

1.1.14 Name of the inspector

1.1.15 Is an up to date OCIMF OVPQ available on board?

Raise an observation if name of vessel/unit recorded in OVPQ is not the same as it appears on certificate of registry

1.1.16 Name of the vessel/unit's operator

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.

1.1.17 E-mail address of the operator

1.1.18 Date the current operator assumed responsibility for the vessel/unit

1.1.19 Specify the Geographic Region in which the inspection took place

Additional Comments

1.99 Additional Comments

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.

Certification and Documentation

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?

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 MO(D)U 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 - May not be issued if a MO(D)U Safety Certificate is issued
- IOPP Certificate
- Load line Certificate
- International Ship Security Certificate
- International Tonnage Certificate
- Minimum Safe Manning Document
- Dynamically Supported Craft Construction and Equipment Certificate
- MO(D)U Safety Certificate
- Ship Sanitation Certificate
- International Sewage Pollution Prevention Certificate
- Ballast Water Management Certificate
- International Air Pollution Prevention Certificate
- International Anti-Fouling System Certificate
- Helideck Certificate of Survey

2.1.2 Name of Classification society

If the MO(D)U has changed class within the past 6 months, record the previous classification society and the date of change as an Observation. State if MO(D)U is not classed.

2.1.3 Name of P and I Club

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 of February.

Safety Management

2.2.1 Does the MO(D)U have a formal safety management system?

The Company should ensure that the safety management system operating on board the MO(D)U contains a clear statement emphasising the Master or OIM authority. The Company should establish in the safety management system that the Master or 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 MO(D)U;
- 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 or OIM 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 medi-vac, and in addition abandon ship, man overboard, pollution clean up. Occasionally the operator's procedures are available only in computerised versions.

Ascertain whether there is access for all personnel to a computer and whether 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 unit. 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?

If Vessel is ISM certified evidence would be by issuance of DOC and SMS certificates. If MO(D)U is not required to comply with ISM does it operate under an SMS which incorporates similar elements as ISM. Is there evidence of an independent verification of the vessels SMS where it is not ISM certified?

2.2.3 Does the operator's representative visit the MO(D)U at least bi-annually?

Record the date of the last 2 visits. Verify that office managers have visited the unit to undertake a formal audit or inspection as per safety management system within the last six months.

2.2.4 Is a recent operator's SMS audit report available and is a close-out system in place for dealing with non-conformities?

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 audit observations should not be used as a means to record Observations unless there is no evidence of a close out system in place, at which point those observations should be listed in this question only.

2.2.5 Does the Master or OIM review the safety management system and report to the operator on any deficiencies?

Record frequency of review and make an Observation if no formal notification of the review has been submitted to the company.

Class Documentation and Survey

2.3.1 Date of departure from the last dry dock or underwater inspection

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

2.3.2 Is the MO(D)U free of conditions of class or significant recommendations, memoranda or notations?

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

2.3.3 Was last drydocking/underwater survey scheduled?

Inspector to record date of last docking or underwater survey. If the last drydocking/underwater survey was unscheduled, record observation and reason for docking / survey.

Publications

2.4.1 Are the publications listed in the guidance, as applicable to the MO(D)U, available?

The inspector should verify that all listed publications appropriate to the MO(D)U'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*
- *MO(D)U Code 79/89/2009*
- *Bridge Procedures Guide*
- *Collision Regulations, Consolidated edition*
- *Ship's Routing*
- *International Code of Signals*
- *IAMSAR Manual (Volume III)*
- *International Medical Guide for Ships (or equivalent)*
- *IMDG Code International Safety Management (ISM) Code*
- *International Ship and Port Facility Security Code (ISPS Code)*
- *International Code of Signals*
- *1974 SOLAS Convention, as amended*
- *Life Saving Appliances (LSA) Code*
- *MARPOL 73/78*
- *International Convention on Load Lines*
- *Collision Regulations (COLREGS) 1972 as amended*
- *Fire Safety Systems (FSS) Code*
- *International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual Volume III (Mobile Facilities)*
- *IMO Code on Alerts and Indicators*
- *Ballast Water Management Convention*
- *Global Maritime Distress and Safety System (GMDSS) Manual (Applicable to Installations with GMDSS Installed)*
- *International Chamber of Shipping (ICS) Guide to Helicopter/Ship Operations*
- *Mariner's Weather*
- *Applicable local tide tables or tide atlas*
- *BMP4*
- *Mariners Handbook*
- *Medical Guide i.e. Ship's Medicine Chest and Medical Aid at Sea or International Medical Guide for Ships or Ship Captain's Medical Guide*
- *Code of Safe Working Practices for UK registered MO(D)U's*
- *GMDSS Operators Handbook*

2.4.2 Are the documents listed in the guidance, as applicable to the MO(D)U, available?

Documents appropriate to the MO(D)U's operations may include:

- *Guide to Helicopter/Ship 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*
- *UKOOA Guidelines for the Management of Helideck Operations*
- *CAP 437 Offshore Helideck Landing Area Guidance on Standards*
- *MSF Guidance Documents*

Additional Comments

2.99 Additional Comments

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.

Crew and Contractor Management

General

3.1.1 Are both crew and third party personnel required to comply with the MO(D)U's safety management system in full?

While on board the MO(D)U, all contract personnel should work within the MO(D)U's SMS and permit to work system. On board a MO(D)U this is often covered in the introduction briefing to the unit.

3.1.2 Is there a process in place to ensure that any bridging documents integrate effectively with the vessel/unit's safety management system?

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 that Senior Staff on board understand the contents of the bridging document.

3.1.3 Are both crew and contractors required to comply with the MO(D)U's drug and alcohol policy and testing regime?

While on board the MO(D)U, all contract personnel should comply with the MO(D)U's D and A policy, except if the Contractor's policy is more restrictive. Verify that Contractors Bridging Document contains reference to D and A Policy if in use and greater than MO(D)U owner.

3.1.4 Is the drug and alcohol policy based on 'zero tolerance' (requiring zero Blood Alcohol Content (BAC) and zero drug content) for all on board the MO(D)U?

This would include zero blood alcohol content when boarding the MO(D)U at any time or being in possession at any time while on board. Verify how this is communicated to all core and third party personnel for clear understanding

3.1.5 Is there a 'for cause' and 'post incident' testing requirement?

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

3.1.6 Does the operator have a policy for unannounced drug and alcohol testing?

Verify if compliance against the policy can be demonstrated. Document the last recorded date of unannounced testing.

3.1.7 Is there a common language stipulated for on-board communication?

Record which language is stipulated.

3.1.8 Is there a system for ensuring communications between the MO(D)U's crew and third parties?

Where a common language is not spoken by all on board, arrangements should be in place to ensure the effectiveness of communications, without risking misunderstanding 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?

Record which language is utilized and if it is consistent with the language documented in 3.1.7.

Crew-specific

3.2.1 Does the manning level meet or exceed that required by the Minimum Safe Manning Document?

3.2.2 Is there a process to define the number of personnel required to be on board to perform anticipated marine operations?

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

3.2.3 Do documented procedures address scenarios which may require down-manning of non-essential personnel from the MO(D)U?

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. Where the

operators policy is not to down man but to suspend operations and depart the field, the inspector shall answer N/A and document the operators policy of departure and avoidance.

3.2.4 Are personnel appropriately qualified for the marine operations and equipment on board?

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; FRB crews.

3.2.5 Is there a competence assessment process for the crew on board?

There should be documentary evidence of periodic competence assessment. This system should assess the competency of all MO(D)U personnel and be linked to future training and promotion requirements as necessary. Describe whether process is formal or informal and who is responsible for the assessments.

3.2.6 Does the company operate a formal appraisal for on-board personnel involved in operations?

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?

State who makes the assessment.

3.2.8 Do all crewmembers documented on the Safe Manning Certificate hold the appropriate and valid certification from the Flag state of the MO(D)U?

Inspectors should ascertain by spot checking that Certificates of Competency from the original issuing body are valid and consistent with the certificates issued by the MO(D)U Flag State Authority.

3.2.9 Do all personnel maintain hours of rest records and are the hours of rest in compliance with company or flag state requirements?

Inspector to determine and comment if hours are reported to shore management for verification compliance.

3.2.10 Has the OIM/Barge Engineer received training for move operations?

Inspector to comment on what type of training received e.g. Stability, Simulator, Jacking operations, Pre-load, as relevant for specific unit.

3.2.11 If the Master/OIM has been newly hired within the last 12 months, did he receive appropriate pre-command training, including documented understanding of the Company's expectations?

This process is conducted by shore management and includes an introduction to company philosophy and structure, and an outline of expectations and defined responsibilities. In-house induction in Company expectations and requirements may be demonstrable with an Appointment Letter indicating date of office visit / induction.

3.2.12 Have relevant crew personnel received documented training and competence assessment for the navigational equipment fitted on board?

Specify whether the documented training and competence assessment is on-board using mentor based on-the-job training with assessment, at a recognized shore-based establishment, formal on-board training with an external trainer, or CBT on board?

This should apply to all equipment found on the unit and not just apply to Radar and ARPA but other things such as Electronic Charting Systems, GPS Echo Sounders etc. Relevant personnel may include OIM, Deck Officers, Barge Master.

3.2.13 Does the company have a documented disciplinary process which facilitates removal of personnel from the MO(D)U if deemed to be a risk?

This should include, as a minimum, non-compliance with SMS provisions, anti-social behaviour; alcohol/drug use; or ill discipline. Check that the Master or OIM has authority to take appropriate action and that he is required to inform the MO(D)U's Shoreside Management of action taken.

Contractor-specific

3.3.1 Is there evidence of training contractor personnel in the content of the MO(D)U's safety management system?

Look for records of training and sample responses from contractors. This question only applies to contractors who would

sail on the vessel in some capacity and not those that come on board to conduct repairs/services during a port visit. HSSE induction, PTW training etc.?

3.3.2 Is there evidence of all contractors being familiarised with the MO(D)U's emergency procedures and requirements?

This may be part of the initial induction process and should include personal reference documents. Use the on-board briefing as a start point and attend emergency drill conducted during the inspection period.

3.3.3 Are contractor personnel encouraged to be involved in the MO(D)U's safety management processes such as safety meetings?

Look for evidence of participation or documented input to the agendas. If positively excluded from input, make comment as an Observation. The Inspector should where possible attend Safety meetings and Pre Touring Meeting to determine contractors attendance.

3.3.4 Is there evidence that contractor staff have appropriate training, rules of engagement and operational procedures for their plant, equipment and work scope onboard the MO(D)U?

Inspector to check that contractors have adequate training and procedures in place for the use of their own equipment on board, including operational limitations of their equipment.

3.3.5 Are procedures in place to verify the adequacy of contractor personnel equipment before first use?

This should include the contractor's equipment on board the MO(D)U. Criticality of equipment with respect to use in hazardous zones should be addressed.

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?

Control measures should include appropriate medical training. This should include all the contractors operations and equipment on board the MO(D)U, fire fighting equipment, separation, storage and bunding etc.

3.3.7 Are contractors aware that they must comply with shipboard (unit) accident/incident reporting and investigation processes?

There should be a clear understanding that accidents and incidents amongst the contractor crew must be reported. This should be covered in HSSE induction – verify.

3.3.8 Do contractors supply appropriate PPE?

Does the PPE provided conform to the requirements of the work instructions, JSA's, PTW's, etc. for the work to be performed on board and including equipment retire/renewal processes.

Additional Comments

3.99 Additional Comments

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.

Navigation

Navigation

4.1.1 Is there a documented procedure in place for entry of a vessel entering into the MO(D)U 500 m safety zone?

Procedure should include the use of checklists to confirm bridge and engine-room status of the support vessel entering the 500m zone and to limit operational activities on board the support vessel, such as hot work, while in the 500 meter / safety zone. The process should demonstrate a two way flow of information to confirm that the MODU informs the support vessel of any conditions or activities that may present risk to that vessel (e.g. scaffolding, venting, flaring, helicopter operations, etc)

4.1.2 Are there procedures in place for the unit to enter into the 500m zone of a surface installation or subsea asset?

For mobile offshore units the inspector is to look for procedures for the unit to move within the 500 meter radius of a surface asset, sub-surface asset or well location and developed in conjunction with duty holder of 500m zone.

4.1.3 Are check lists, such as those for pre-arrival, pre-departure, 500 m zone (ship) hand over being completed?

In the case of MO(D)U's look for documentation and a checklist for completion to confirm operational readiness of the MO(D)U and to confirm the vessel entering the 500m zone has completed its own checks.

Does the MO(D)U have its own Data Card for issue to arrival vessels.

4.1.4 If the unit has more than one manoeuvring control station on the bridge, do the vessel documented 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? When changing manoeuvring control stations on bridge do vessel procedures outline sequenced actions to be followed?

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

4.1.5 Does the operator provide guidance on minimum under keel clearance?

The operator should supply guidance for under keel clearance requirements for scenarios such as coastal passage, port approach, ocean passages, infield and ocean tows as applicable to the type of unit.

4.1.6 Are deck log books correctly maintained and is an adequate record being kept of all the navigational activities both at Sea and in Port?

The inspector may accept logs in either written or electronic format where flag state permits electronic recording.

4.1.7 Are the log book/rough log books maintained and is a record kept of all the marine operations while on station and navigational activities whilst on tow/underway?

The inspector may accept logs in either written or electronic format where flag state permits electronic recording.

4.1.8 Are controls in place to mitigate the risk of a fire developing undetected or a security breach going undetected during sea passages and during drilling operations?

In the event that formal fire and security rounds are not performed and recorded are other means of surveillance and monitoring in place that are formally documented and implemented to mitigate the risk of a fire developing or a security breach?

Inspectors should look for the use of CCTV, Flame Detection, Fixed Fire, Heat, Smoke and Gas Detection systems being documented as safeguards. Where rounds are formally performed and recorded this shall be stated.

4.1.9 Are the MO(D)U's manoeuvring characteristics displayed on the bridge?

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 a dynamically positioned vessel a manoeuvring characteristic diagram or booklet may not have been provided by the constructing shipyard. For MO(D)Us of less than 100 metres in length, a manoeuvring diagram is not required by

legislation but is a best practice and strongly preferred. Crew should be able to demonstrate familiarity with the manoeuvring characteristics of the MO(D)U.

4.1.10 Are auto to manual steering changeover documented procedures clearly identified?

Simple operating instructions 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 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?

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. Verify that the MO(D)U has a system to renew nautical charts with up to date charts before and every rig tow and/or that the rig tow movers mobilise an up to date electronic system.

4.1.12 If the unit is not equipped with a chart folio and publication system is there a documented system implemented on board the unit that provides navigational charts and relevant publications at the time of a rig move or towage operation that permit the passage of the MO(D)U to be monitored on board the MO(D)U?

All MO(D)Us should carry an 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.

Verify that the MO(D)U has a system to renew nautical charts with up to date charts before and every rig tow and/or that the rig tow movers mobilise an up to date electronic system.

4.1.13 Is a lookout maintained at all times when the MO(D)U is underway on passage under its own power?

Does the company have a policy that ensures a lookout is maintained at all times when the unit is at sea?

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)

4.1.14 Is there a process in place to develop comprehensive tow and/or passage plans for all unit moves?

Review previous passage/tow plan.

4.1.15 If the MO(D)U does not perform passage planning itself e.g. a non self propelled/ towed unit , is there evidence of a system for the provision of a passage plan and tow plan that is provided to the unit in advance for review and approval?

Prior to proceeding on a passage or location rig move the Master/OIM 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).

Where appropriate, the Master of the towing vessel is responsible for the preparation of a detailed passage plan and the subsequent safe navigation of the tow. However, in all cases, the passage/tow plan should be reviewed and approved by the unit Master/OIM. The passage or tow plan should be developed taking into the account the following best practices;

- DNV-ST-N001 Marine Operations and Marine Warranty
- Guidelines for Offshore Marine Operations (GOMO)
- Chapters 11 and 12
- ICS Bridge Procedures Guide.

Inspectors should request to sight the last tow plan and passage plan.

4.1.16 Are the factors necessary to identify a standby (soft pin) area location defined in the MO(D)U's Policies /Procedures?

Factors to be taken into account include loss of tow MO(D)U propulsion, adverse weather, prevailing wind and tide and conflicting traffic/infrastructure.

Check last rig tow plan with regards to soft pin areas.

4.1.17 Where installed is the echo sounder data recorded?

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.

4.1.18 Do documented procedures clearly prohibit the use of offshore installations as way points?

Courses should not be set directly to an installation.

4.1.19 Is there a procedure to monitor position during pilotage?

The safe progress of the MO(D)U as planned should be monitored closely at all times. This will also include track monitoring and regular fixing of the position of the MO(D)U, particularly after each course alteration, and monitoring under keel clearance.

4.1.20 Is there a system for dealing with navigation warnings and are they being charted?

Notes: A system should be in place for monitoring navigational warnings appropriate to the MO(D)U'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.

4.1.21 Is all navigation equipment in good order?

Note: Regardless of whether a MO(D)U 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.

4.1.22 Are navigation lights in good order?

Note: Primary and secondary systems should be in good order, and there should be a procedure to check the navigation light failure alarm. Condition of screens e.g. black?

4.1.23 Are procedures in place and evidence available to ensure the Master, Chief Engineer, DPO, Barge Master/Stability Section Leader/Rig Maintenance Supervisor/Rig Mechanic or other personnel performing critical watch keeping or activities has a documented handover?

Verify that hand over notes are completed.

Additional Comments

4.99 Additional Comments

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.

Safety and Security Management

General

5.1.1 Are all crew members aware of the identity and contact details of the Designated Person Ashore. Where the MO(D)U is not under ISM is the identity of an individual with HSE responsibility e.g. Company Safety Officer/Executive or person of similar standing with a reporting line at the corporate level identified and visibly promulgated on board?

5.1.2 Has a MO(D)U safety officer/HSE representative been designated and trained to undertake this role?

Note: One of the primary functions of the Safety officer /HSE Representative is to inspect all areas of the MO(D)U 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 /HSE Representative may not involve equipment maintenance, although it does include identifying equipment deficiencies. Safety officer /HSE Representative training can include in-house or formal shore based training. Training records must match the job description for the Safety officer /HSE Representative within the Safety Management System. The Safety officer /HSE Representative should work closely with any project-appointed HSE personnel.

5.1.3 Are the MO(D)U's personnel familiar with the operation of fire fighting, life saving and other emergency equipment?

Note: Personnel should be familiar with the operation of the fixed fire fighting systems, the main and emergency fire pumps, the emergency steering gear, Fire and Gas / ESD (emergency shutdown) responses, and EDS (emergency disconnect) disconnections from the well, 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?

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?

Documented guidance relating to the use of PPE specific to the task should be provided. Operators may specify a minimum PPE standard for any work then identify additional requirement required based on the specific risks presented by the work to be performed. This may be in the form of a PPE matrix or be identified with Task Risk Assessments, Work Instructions, Job Safety Analysis or equivalent documents and processes. Work sites should be clearly marked and signage posted to indicate particular PPE requirements where applicable.

The inspector shall identify the processes present or absent to substantiate his response.

5.1.6 Are personnel using PPE as required?

Inspectors shall verify by sampling and observation if the processes and practices documented and applied in question 5.1.5 for the use of PPE specific to the task are being implemented by personnel.

5.1.7 Are regular safety meetings held, are the minutes recorded and does the operator provide shore management responses?

Note: Safety meetings are intended to permit discussion among the MO(D)U's supervisory personnel and workforce where these relate to safety. Regular committee safety meetings should not be used for the purposes of instruction or training.

5.1.8 Does the MO(D)U have documented procedures for Man Overboard scenarios?

Check arrangements for raising the alarm and for deploying flotation and recovery equipment. MO(D)U Inspectors should determine if MOB procedures are outlined at rig safety inductions for new joiners and check muster lists and station bills for MOB procedures. The plans and procedures shall identify the equipment intended to be used for recovery purposes and measures to be taken to minimize the risk to shipboard personnel involved in recovery operations. Reference: SOLAS III/17-1 MSC.1/Circ.1447 "Guidelines for the development of plans and procedures for recovery of persons from the water" can be used as reference guidelines. MODU Code (1989/2009) - Chapter 14

5.1.9 Is there a procedure for the reporting, investigation and close-out of accidents, incidents, non-conformities and near misses?

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

5.1.10 Are smoking restrictions in place and are they being adhered to?

There should be no smoking at food preparation area. Common areas such as restrooms, cafeterias or conference rooms should be designated as non smoking. 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 and included in the vessel PMS? Is there documented procedure for testing portable appliance/equipment within SMS including the use of portable electrical equipment on deck?

Is an annual audit of portable electrical equipment carried out?

Record the last audit date of the portable appliances/equipment. 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?

5.1.13 Does the safety management system address the control of hazardous substances used on board the MO(D)U?

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

Medical

5.2.1 Is the hospital clean and tidy and ready for immediate use?

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?

5.2.3 Does the MO(D)U have a designated medic or crew member to provided medical care on board?

State which persons is designated. On board a MO(D)U there is normally a defined medic/doctor position.

5.2.4 Is there a system for verifying and checking medical stores?

Inspectors are to record the last date of a formal check of the medical stores inventory, who performed the check and if the check is driven through a planned maintenance system or as a standalone check.

5.2.5 Are first aid kits readily available and subjected to regular inspection to confirm their contents?

Check in Planned Maintenance System to determine if the inspection and restocking is included.

Check the fire and safety plan for the minimum number and distribution of first aid kits.

5.2.6 If cardiopulmonary resuscitation (CPR) equipment, including oxygen resuscitators and defibrillators is carried, is it in good condition and regularly tested?

Check in Planned Maintenance System to determine if the inspection and testing is included.

5.2.7 Are personnel trained in the use of CPR equipment/ Oxygen resuscitators and defibrillators?

Check training and medical records.

5.2.8 Is medical advice available 24hrs a day?

Dedicated Medical advice should be in place and available 24hrs a day. Emergency numbers should be posted or readily available. Verify if medevac cover in place and within bridging document or stand alone procedure.

5.2.9 Is there a formal medical evacuation plan in place?

Confirm if in bridging document or stand alone procedure and is the process understood? There should be evidence of a documented medical evacuation plan in place and this should be used during appropriate drills.

5.2.10 Are provisions made to provide the MO(D)U's crew with medical and first aid training and facilities?

There should be documentary evidence of training courses and competency assessments. On board MO(D)US inspectors shall take into consideration the presence of a trained and qualified Paramedic/Doctor on board at all times with the primary role and responsibility of providing First Aid and Medical to the MO(D)U crew.

5.2.11 Does the company have a medical policy and medical procedures in place?

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.

Management of Change

5.3.1 Is there a documented procedure in place for the management of change?

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:*
 - o *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.*
- *Verify last MoC completed (or presently in progress).*
- *MoC for permanent alterations require Class approval.*

5.3.2 Is there evidence to demonstrate that the MoC process is being applied in accordance to MoC procedure?

For example, the addition or removal of MO(D)U 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 MO(D)U's systems?

May include the requirement for Class and or flag approval. MO(D)U systems could include hydraulic, electrical, air, water, drainage and safety systems, such as fire detection.

Drills, Training and Familiarisation

5.4.1 Is there a procedure for the HSSE Induction of new personnel, including contractors?

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

5.4.2 Are emergency drills being carried out regularly?

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. Drills should include Seabed foundation failure (punch through) and Jacking System Failure.

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?

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 MO(D)U's life-saving appliances in severe weather and severe sea conditions.*

5.4.4 Are 'grab bags' available in cabins?

Grab bags may contain, for example, smoke hoods, torch/flashlight or chemi-luminescent sticks or gloves as an aid for personnel to escape from smoke-filled accommodation. Do Emergency Procedures (or the Safety Case documents if applicable) identify Grab Bags as risk mitigation measures for emergency escape.

5.4.5 Are muster points clearly marked?

5.4.6 Do vessel specific emergency procedures exist covering, for example, fire, explosion, grounding, pollution, loss of stability, loss of mooring, etc.?

The Emergency Response Plan should include the following:

- *Effective management structure in the event of an emergency*
- *Identification of onshore facilities*
- *Linking arrangements with contractor plans, national authorities, local administration, local emergency and support services*
- *Identification of key personnel and their contact details*
- *Resource information*
- *Detailed and comprehensive evacuation plans including facility shutdown and securing procedures (This will include hurricane evacuation if appropriate.)*
- *A training program*

Where applicable, the Emergency Response Plan should address the following emergency scenarios:

- *Fire and explosion on-board*
- *Major escape of flammable and/or toxic vapours, gases, oil or chemicals*
- *Grounding, collisions and unintended contacts*
- *Enclosed space rescues*
- *Casualty evacuation and treatment*
- *Loss of stability, watertight integrity*
- *Loss of station keeping*
- *Emergency disconnect*
- *Helicopter incidents including crashing on deck*
- *Meteorological hazards such as hurricanes, squalls, high winds, electrical storms, wave height*
- *Security breaches including criminal and terrorist activities, sabotage and threats against MO(D)U or facilities*

Ship Security

5.5.1 If MO(D)U has an approved SSP, has a ship security officer been designated and do they hold appropriate certification?

STCW, Regulation VI/5 - Mandatory minimum requirements for the issue of certificates of proficiency for ship security officers

1 Every candidate for a certificate of proficiency as ship security officer shall:

- .1 have approved seagoing service of not less than 12 months or appropriate seagoing service and knowledge of ship operations; and*
- .2 meet the standard of competence for certification of proficiency as ship security officer, set out in section A-VI/5, paragraphs 1 to 4 of the STCW Code.*

2 Administrations shall ensure that every person found qualified under the provisions of this regulation is issued with a certificate of proficiency.

5.5.2 If the MO(D)U is NOT required to have an approved SSP because of unit type, are there Security Procedures in place?

5.5.3 Is a deck watch being maintained to prevent unauthorised access?

Note: Are there processes/procedures in place to prevent unauthorized access to the unit. Inspector to note what processes/procedures in place. Is MARSEC level displayed. MO(D)U's manned 24/7.

Inspectors shall take into consideration that MO(D)US are manned and operated at similar levels on a 24/7 basis and consider if that manning level and deck presence is sufficient to prevent unauthorized access.

5.5.4 If required, are security drills carried out at regular intervals?

To ensure the effective implementation of the provisions of the ship security plan, drills should be conducted at least once every three months. In addition, in cases where more than 25% of the ship's personnel has been changed, at any one time, with personnel that has not previously participated in any drill on that ship within the last 3 months, a drill should be conducted within one week of the change. ISPS Code, Part B, 13.6

5.5.5 Are personnel aware of the function of the ship security alert system and how to operate it?

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)

Control of Work

5.6.1 Does the MO(D)U operate a documented permit to work system?

A permit to work system should:

- *Cover all areas of the MO(D)U*
- *Address MO(D)U 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 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?

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?

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 Are the period of validity and requirements for revalidation specified on the permit?

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

5.6.5 Do personnel receive formal training in the use of the PTW system?

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

5.6.6 Does the PTW system include an audit process?

Examples are audits by Safety Officer /HSE Representative and Master/OIM Master or OIM as well as those conducted by shore management representatives during MO(D)U visits.

Check that there is an effective process of monitoring permit compliance on day-to-day basis.

5.6.7 Does the PTW or SMS include a "Stop the Job" policy or statement?

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.

5.6.8 Is there evidence that an effective isolation process is implemented on board as part of the PTW system?

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.

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

'High Voltage' is generally deemed to be >1000 volts (or less if company specifies). Procedures should require a re-test for dead when a change in conditions associated with the work is experienced. Procedures should require two personnel to be present when working on exposed conductors.

5.6.10 If the MO(D)U has high voltage equipment, are staff suitably trained and been deemed competent to perform maintenance on it?

Check for evidence of ETO and Electricians having High Voltage training. In HV switchboard rooms check for HV rubber gloves suits and insulating hooks. HV Training and Awareness Procedures should be in place and staff should be aware of potential hazards associated with high voltage systems. Procedures may include, but are not limited to:

- Awareness training to understand the risks of high voltage electricity
- Safe system of work for maintenance procedures
- Repairs/maintenance of high voltage equipment only conducted by competent persons
- Use of Lock Out / Tag Out system and warning signs during maintenance or repair
- Medical emergency procedures.

5.6.11 Are there specific procedures in place for any hot work on board?

- the workspace and bilges shall be clean, dry and free of oil
- 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 per cent
- 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

5.6.12 Are users of welding equipment specifically trained and qualified for the equipment found on board?

5.6.13 If electric welding equipment is provided, is it in good order, inspected regularly and are written safety guidelines available on site?

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 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 inserted 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.

5.6.14 If gas welding and burning equipment is provided, is it inspected regularly and is the condition of the equipment consistent with maintenance and inspection records?

Check records of inspection. Confirm that flashback arrestors are fitted and subject to an inspection maintenance and replacement regime.

5.6.15 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, protective caps and dust caps for stored spare units and storage/lifting device means?

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.

5.6.16 Are there procedures in place covering the use of portable electrical equipment on deck?

Procedure should also include controls on the use of wandering leads and their inspection and maintenance requirements. Inspector to document voltage being used on open areas by portable appliances.

5.6.17 Are all spaces that are classed as 'enclosed spaces' identified and clearly marked?

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.

5.6.18 Are there specific procedures in place for enclosed space entry?

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.
- lighting, including a back-up source and safe access has been provided.
- During the hazard assessment phase, the MO(D)U'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.

- *Have enclosed space training and drills been held. MO(D)U Code IMO RESOLUTION MSC.358(92) (Adopted on 21 June 2013) requires that by 1st Jan 2015 14.13 Enclosed space entry and rescue drills.*

Crew members with enclosed space entry or rescue responsibilities should participate in an enclosed space entry and rescue drill to be held on board the unit at least once every two months. Each enclosed space entry and rescue drill should include:

- 1 checking and use of personal protective equipment required for entry;*
- 2 checking and use of communication equipment and procedures;*
- 3 checking and use of instruments for measuring the atmosphere in enclosed spaces;*
- 4 checking and use of rescue equipment and procedures;*
- 5 instructions in first aid and resuscitation techniques.*

5.6.19 Are portable gas and oxygen analysers provided appropriate to the MO(D)U's operations and are they calibrated and in good order?

Check calibration records and that tests and inspections are included in the MO(D)U planned maintenance system.

Check the availability of span gas on board.

Inspector to record last calibration and frequency required.

5.6.20 Are personnel on-board trained in the use and calibration of portable oxygen and gas analysers?

Portable oxygen and gas analysers are analysers used to evaluate the atmosphere of an enclosed space prior to entry. Training records should be maintained.

5.6.21 Are there specific procedures covering working at height or over side work?

A permit shall 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 MO(D)Us side railings.*
- *Working over the MO(D)U's side.*
- *Using scaffolding.*
- *Has rescue from heights training been given.*

Lifting Equipment

5.7.1 Are up to date records maintained for the regular inspection, maintenance and testing of all lifting devices?

E.g. chain register/ lifting appliance register, planned maintenance system, etc. 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 dependent 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.?

This may be in the form of on board inspection regimes, change out on a 6 monthly basis of a rigging locker or the attendance of 3rd party inspection companies who catalogue and inspect all loose lifting gear and provides databases of equipment linked to inspection certificates and history either by CD or on line systems.

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

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?

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?

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?

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?

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.

5.7.8 Is there a programme for routine testing, i.e. start-up, daily, weekly and monthly checks of lifting equipment?

Including the use of check lists. Inspectors should verify that checklists for equipment are in use and where defects are identified they are being addressed via the MO(D)U maintenance supervisor and the RMS/PMS.

5.7.9 Is there a documented procedure requiring that all lifting operations are properly planned?

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 MO(D)U have a system in place for the quarantine of damaged or uncertified lifting equipment?

Check for a quarantine area on board the unit, Inspector to document if the quarantine area is secure from reuse once items are deposited. Inspectors may be advised that damaged equipment is destroyed to prevent re use and should check for procedures that document this requirements and examples /records of equipment with drawn from service and destroyed.

5.7.11 Is there a company policy/procedure for blind lifts?

During a blind lift, the load cannot be watched by the crane operator for the complete cycle of the operation. To mitigate this additional level of risk additional following safety precautions are put in place and documented.

5.7.12 Are any personnel elevators (lifts) on-board the MO(D)U inspected and certified in date?

Are any personnel elevators (lifts) on-board the vessel included in the MO(D)U's PMS?

Inspectors are to verify the last inspection date and sight testing certification. In many cases the test certificates is posted within the lift.

Offshore Personnel Transfer

5.8.1 Does the MO(D)U have documented personnel transfer and manriding procedures?

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 either hand signals or radio communication.*
- *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*
- *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?

Sight certification and inspection records.

Is the Pax transfer baskets in date for inspection. Inspectors are to document the periodic inspection regime in place for this equipment.

5.8.3 Have all personnel involved in lifting/man riding operations undergone training to carry out such operations?

Does the crane operator have a valid offshore crane operator OPITO stage 3 certificate or equivalent?

Does the banksman have a valid banksman OPITO stage 3 certificate or equivalent?

5.8.4 Where fitted, is the offshore personnel gangway certified and subject to an inspection programme?

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?

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?

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

5.8.7 Are all cranes used for personnel transfers, inspected and certified for manriding operations?

Sight certification and inspection records.

Life Saving Appliances

5.9.1 Are MO(D)U specific life-saving equipment training manuals available?

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: May not be required on a moored MO(D)U as not SOLAS- MO(D)U Code does not require. If a drillship this would apply

- *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 MO(D)U specific Life saving equipment maintenance instructions available and are weekly and monthly inspections being carried in compliance with applicable MO(D)U Code and SOLAS requirements?

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 logbook. (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 on-board?

Muster lists and Station Bills shall be exhibited in conspicuous places throughout the MO(D)U including the navigation bridge, engine room and crew accommodation spaces in compliance with applicable MO(D)U Code (Chapter 14.10) and SOLAS requirements (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 MO(D)U has lifeboats, is there a maintenance and test schedule for lifeboat on-load release gear?

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)

A change to the MO(D)U Code (adopted by Resolution MSC.387(94) as new paragraph 14.12.4.3) now allows operators to use alternative drill methods, provided they are following the draft Guidelines on Alternative Methods for Lifeboat Drills on MO(D)Us (MSC.1/Circ.1486 12 Jan 2015). Units certified to the 1979 and 1989 MO(D)U Codes may also apply these guidelines. This requires the operator to demonstrate compliance with the requirements of MSC 1/Circ1486.

The guidelines include requirements for equipment maintenance, inspections, servicing, and personnel competence and training in accordance with the Recommendations for the Training and Certification of Personnel on Mobile Offshore Units (Resolution A.1079 (28)).

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 MO(D)U has lifeboats, are the lifeboats, including their equipment and launching mechanisms, in good order?

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 the MO(D)U receiving alerts for LSA equipment?

*Inspector to ascertain if the unit or company is on any distribution list that provides alerts and notices on lifesaving equipment such as equipment manufacturer, vendor, Marine Safety Forum, U.S. Coast Guard or the like. * E.g. Vendors or USCG alerts regarding to LSA equipment.*

5.9.7 Is there a procedure in place for the periodic inspection of davits, fall wires and brake mechanisms?

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

5.9.8 Are lifeboat (if fitted) and life raft operating instructions displayed, are they clear and legible?

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).*

5.9.9 If the MO(D)U has a lifeboat designated as a rescue boat, is the rescue boat, including its equipment and launching arrangement, in good order?

Lifeboats which are designated as 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.*

Does the unit have sufficient personnel assigned to operate the rescue craft?

Inspector to sample the records for persons currently aboard the unit and their relief (back-to-back) for the minimum required rescue boat training and certification. Inspector to examine training and drills records to ascertain if the assigned personnel have experience operating the installed equipment.

5.9.10 If the MO(D)U is equipped with a Fast Rescue Boat is the equipment in good order and regularly maintained. Is the Fast Rescue Boat being launched in accordance with the requirements of the MO(D)U code requirements?

A fast rescue boat should be launched at intervals of 1 month where circumstances permit and at a maximum interval of 3 months. State the last date of exercise and confirm that there are sufficient personnel on board allocated to the boat with Fast Rescue Boat Training SOLAS 19 3.3.6 states.

5.9.11 Are life rafts in good order?

Is the last inspection date visible and its certification within the due date, container free from apparent defects and the life raft stowed uninhibited for emergency deployment/release?

5.9.12 Are hydrostatic releases, where fitted, correctly attached and in good order?

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

Each life raft or group of life rafts 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)

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

5.9.13 Are survival craft portable VHF radios and Search and rescue Radar Transponders in good order and charged?

All lifeboats should carry a two-way VHF radiotelephone apparatus. In addition, at least two such apparatuses should be available on the MO(D)U, so stowed that they can be rapidly place in any life raft. All two-way VHF radiotelephone apparatus should conform to performance standards not inferior to those adopted by the Organization.

5.9.14 Are lifebuoys, lights, buoyant lines, quick release mechanisms and self-activating smoke floats, SARTS and EPIRBs in good order?

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)

Verify date of rechargeable batteries and spare lithium batteries carried and date of expiry not exceeded. SARTS battery dates to be in date.

5.9.15 Are lifejackets in good order?

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

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)

5.9.16 Are lifejacket donning instructions displayed?

Ensure instructions include all types of lifejackets carried on board.

5.9.17 If MO(D)U is outfitted with immersion suits, are the immersion suits in good order?

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 workstations 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)

5.9.18 Are pyrotechnics, including line throwing apparatus, in date and in good order?

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 onboard (SOLAS V/29).

5.9.19 Are the locations of life saving appliances marked with IMO symbols?

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)

5.9.20 Is the LSA plan seen to be up to date and represent the current arrangements on the MO(D)U?

Inspectors shall verify that fire and safety plans posted are approved dated and stamped by Flag State or class on behalf of Flag State and that the issue date is aligned to the latest LSA and FFA updates and upgrades. These are often made at refit periods and amendments are issued after completion of works.

Fire-fighting

5.10.1 Are MO(D)U-specific fire training manuals available?

The training manual shall explain the following in detail: May not be required on a moored MO(D)U as not SOLAS-MO(D)U Code does not require. If a drillship this would apply

- 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 MO(D)U'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 MO(D)U-specific fire safety operational booklets available?

The fire safety operational booklet shall contain the necessary information and instructions for the safe operation of the vessel. The booklet shall include information concerning the crew's responsibilities for the general fire safety of the vessel. The fire safety operational booklet shall be provided in each crew mess room and recreation room, or in each crew cabin. The booklet shall be written in the working language of the ship. The booklet may be combined with the fire training manual.

5.10.3 Is all fire fighting equipment available for use and defect free?

- Ensure Portable fire extinguishers are inspected and in good order
- Ensure fire hose station/boxes are in good order and contains appropriate equipment.
- Are Fire pumps/Emergency fire pumps/Jockey pumps fully operational and starting instructions posted.
- Operating instructions for fixed systems should be clearly displayed
- Firemen's outfits including breathing apparatus should be in good condition and ready for immediate use.
- Breathing apparatus sets should be ready for immediate use with fully charged air bottles.
- Sufficient fully charged spare air bottles should be available.
- Is a BA air compressor available and is a air quality check certificate available..
- Are EEBDs/SCBEA available, charged and crew trained?

5.10.4 Are measures in place to effectively isolate ventilation to enclosed spaces, i.e. machinery spaces, accommodation/quarters, galley, storerooms, etc.?

- Vent fan stops should be operational and clearly marked (spot check if practicable).
- Ensure that closing devices are easily accessible for inspection/maintenance and local operation.
- Ensure manual ventilation closures are provided safe access.
- Ensure hazardous area ventilation outlets are marked accordingly.
- Function test a representative sample of fire dampers and verify correct operation and position indication where practicable.

5.10.5 Are MO(D)U-specific fire fighting equipment maintenance instructions available and are weekly and monthly inspections being carried out?

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)

5.10.6 Are records available to show that samples of foam compound have been tested at regular intervals?

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)

5.10.7 Is a fire control plan exhibited within the accommodation, is a copy available externally and is equipment correctly marked on it?

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.

5.10.8 Are fire stations situated in readily accessible locations?

Fire stations in exposed areas should be located near escape routes

5.10.9 If MO(D)U is required to carry Methanol or other alcohol based substances, is the unit equipped with an appropriate extinguishing system?

If a system is fitted does class or flag review system.

5.10.10 Are fire mains, pumps, hoses and nozzles in good order and available for immediate use?

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

Do the PMS entries provide the robust integrity management and assurances control for the systems and equipment i.e.. UT examinations/trending of results, exercising and testing of isolation valves.

Are isolation valves clearly marked to reflect PMS entry.

Is the instrumentation for the system in good working order.

5.10.11 Are escape routes clear and all objects/heavy items near escape routes properly secured?

5.10.12 Is the International shore fire connection readily available externally and is the location clearly marked?

The connection shall be of steel or other suitable material. The connection shall be kept aboard the MO(D)U 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 MO(D)U, the connection should be accessible from both sides of the MO(D)U and its location should be clearly marked. The shore connection should be ready for use whenever a MO(D)U is in port.

5.10.13 Are fixed fire detection and alarm systems, if fitted, in good order and tested regularly?

Inspector to check that alarm testing covered in MO(D)U PMS.

5.10.14 Are fixed fire extinguishing systems, where fitted, in good order and are clear operating instructions posted?

Check that relevant crew are familiar with operating procedures.

Inspectors shall check that the procedures as posted and written for operation are relevant to the systems and equipment and can be followed logically and any equipment requiring operation is marked legibly.

5.10.15 Is the emergency fire pump in full operational condition and are starting instructions clearly displayed?

Consistent with safety and without interfering with the MO(D)U'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.

Inspectors shall check that the procedures as posted and written for operation are relevant to the equipment and can be followed logically and any equipment requiring operation is marked legibly.

5.10.16 Are portable fire extinguishers in good order with operating instructions clearly marked?

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.

5.10.17 Are firemen's outfits and breathing apparatus in good order, provided with fully charged cylinders and ready for immediate use?

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)

5.10.18 Are fire suits prepared and ready for immediate use?

Inspector to check that a process is in place for personnel allocated to firefighting duties to check kit and verify ready to use at all locations.

5.10.19 If fitted, are emergency escape breathing devices in good order and ready for immediate use?

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-2/13.4.3.1)

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.

5.10.20 Are ventilation fan emergency stops clearly marked as to which space they serve and are they covered in the MO(D)U PMS?

Inspectors are to check that fan stops are clearly marked to identify the spaces they serve, and their routine testing is covered in the MO(D)U Planned Maintenance.

5.10.21 Are fire flaps clearly marked as to which space they serve and are they covered in the MO(D)U PMS?

Inspectors are to check that fire flaps are marked to identify the spaces they serve, free to operate /close and be secured, provide a seal when closed and their maintenance and inspection is covered in the MO(D)U Planned Maintenance System

5.10.22 If MO(D)U has FiFi notation, is the associated equipment in good order?

State notation class.

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

On MO(D)Us with a FiFi II crew should be aware of potential risks of incorrect use of fire fighting equipment due to high pressure of monitors.

5.10.23 Are Fire Doors Operational and part of a maintenance and inspection regime inspection?

Inspector to comment upon fire doors being included in PMS and frequency of inspection.

Inspectors shall identify any defects found with fire doors and check for disabling of self closing mechanisms, doors tied back, restrained and damage to hinges seals and closing mechanisms which prevent closure

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?

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 MO(D)U and the quay. Where the rails provide protection, a safety net might not be necessary.

*Regardless of whether the gangway is supplied by vessel or shore, it is the MO(D)U'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 MO(D)U is not fitted with a helideck, and Chapter 14 is not applicable, does the MO(D)U have a set of procedures/guidance for helicopter winching operations in the event that they may need to be enacted?

There should be a plan in place for possible medi-vac 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.

Additional Comments

5.99 Additional Comments

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.

Pollution Prevention

Oil Record Book

6.1.1 Is the Engine Room (Part I) Oil Record Book and, if applicable, Part 2, correctly completed?

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/OIM.

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?

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 I.

In Part I, 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?

The recording of any incidents is where the inspector should look. If incidents are recorded, look for notifications to company and administration as well as incident investigation and follow up.

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 MO(D)U receive a statement or certificate of disposal from the shore facility?

Where oily water and sludge is disposed of by landing to supply vessels for transport and disposal onshore the inspector shall check for records attesting to this in the Oil Record Book.

6.1.5 If fitted, are thruster seals free of hydraulic leaks?

Check for records of oil consumption being maintained. If loss to sea is being recorded or evident, inspector to try and ascertain daily loss amounts and determine if remedial actions are identified/planned.

6.1.6 Are there containment arrangements fitted around hydraulic machinery in case of leaks?

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?

Check equipment logs and maintenance records. Inspectors shall validate if the operation and testing of the OWS is included in the MO(D)U PMS and record if it not included in the PMS.

6.1.8 Are measures in place to safeguard against the accidental opening of the overboard discharge valve from the oily water separator?

Inspector to make an observation if OWS overboard valve is not under control of a Permit to Work system.

6.1.9 Are appropriate arrangements in place to monitor bilge spaces and prevent "contaminants" being discharged directly overboard?

Inspector to verify appropriate controls are in place to monitor and prevent any 'contaminants' from being discharged overboard.

Shipboard Oil and Marine Pollution

6.2.1 Is an approved MARPOL Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan provided?

Every oil tanker of 150 GT 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?

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.

Inspectors are to record if the 3 monthly update forms part of a routine check and update by the MO(D)U or shore based support organisation.

6.2.3 Is there evidence that the MO(D)U has carried out regular drills and that the contents of the SOPEP/SMPEP Manual have been reviewed?

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.

Bulk Transfers

6.3.1 Is there evidence of a pre-transfer conference being held between the MO(D)U and the delivery/receiving vessel or facility before the transfer of Bulk Liquids begins?

Inspectors are to validate a documented pre-transfer checklist is in place and forms part of the MO(D)U SMS and that is being completed for each fuel or Hazardous and noxious bulk liquid.

6.3.2 Are spill containment arrangements provided in way of bulk transfer manifolds?

If not permanent, comment on temporary arrangements provided.

6.3.3 Are manifold spill containers, if provided, empty and are the drainage arrangements satisfactory?

Inspector to verify drainage plug is readily available and/or fitted in place?

6.3.4 If carried, are the hoses and connections used for the transfer of bulk liquids free of defects?

The Inspector is to document the testing interval in place by the MO(D)U operators and verify if the testing and inspection schedule is documented in the MO(D)U SMS and PMS. In the event that the operator has a periodic discard criteria the interval is to be recorded.

6.3.5 If carried, are all transfer hoses routinely tested?

Records to be sighted confirming regular tests for pressure. Confirm there is a process of routine inspection of hoses. During operations, inspection of hoses is primarily by 'close visual inspection' of the entire hose length, paying particular attention to the end terminations. Close visual inspection means a visual check of the entire external area of the flexible hose assembly paying particular attention to blisters, deep lacerations or abrasions exposing inner core or fabric, unravelling of the outer cover, surface cracking and misalignment of coupling paint marks.

Flotation collars should be secure and in the correct position.

Water should be used to carry out leak tests wherever possible. Leak testing should be conducted on the complete hose assembly wherever possible and should consist of:

- *hose assembly hung off or laid on deck;*
- *blank end cap fitted at one end;*
- *hose filled with water;*
- *pressurise to circa five (5) bar sufficient to indicate a leak;*
- *hold for five minutes and visually inspect complete length;*
- *if all okay, drain assembly to oily drains system;*
- *repair or replace as needed, re-test and return to service.*

The use of compressed gas such as air or nitrogen for any form of leak or pressure test is not permissible because:

- *large volumes of pressurised gases are dangerous;*
- *hoses are not designed for pressurised gas;*
- *leaks in hydrocarbon hoses can produce a flammable mist;*
- *pinhole leaks are not always detected*

6.3.6 If carried, are transfer hoses fitted with certified lifting saddles/hang off arrangements and stowed in racks?

If hoses are stored on reels, Inspector is to make a comment in this section. Lifting gear to be certified.

Check for inclusion of the hose collar/ hanging arrangement being included as an item of certified lifting equipment.

Inspector to mark NO to the question if the hose saddles /lifting gear is rig fabricated and lacks a load test SWL certification.

6.3.7 If carried, are transfer hoses fitted with flotation collars?

Check also fitted with reflective tape. Number and distribution of flotation collars to be in accordance with guidance contained in GOMO.

6.3.8 If carried, are hydrocarbon and NLS hoses, fitted with leak free couplings such as Todomatic at the hose end?

State the type and confirm if the MO(D)U has any service /inspection interval of dry break couplings.

6.3.9 If carried, are hydrocarbon and NLS hoses, fitted with dry break couplings in the hose length?

Inspector to state which hoses are fitted with in line dry break couplings and state the service/inspection interval.

6.3.10 Are all connections and pipework for bulk products and liquid cargo colour coded and clearly marked at loading stations?

Guidance GOMO.

Ballast Water Management

6.4.1 Does the MO(D)U have an approved ballast water and sediments management plan?

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?

Waste Management

6.5.1 Does the MO(D)U have a garbage management plan and has garbage been handled and disposed of in accordance with MARPOL?

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?

6.5.3 Has the Garbage Record Book been correctly completed?

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 V/9/3)

6.5.4 Are controls in place to ensure that sewage treatment plant discharges comply with MARPOL or local requirements?

The inspector should check what performance /function test are required by the PM system or OEM manuals and document any variance from the procedures. If there are no procedures and there is no evidence of testing this shall be recorded as a No.

Where appropriate, controls should be in place to prevent the unauthorised discharge of sewage. Such measures shall ensure that all discharges comply with the requirements of MARPOL Annex IV and local requirements as applicable. Evidence may include, but not be limited to, procedures within SMS or vessel operating manual, Chief Engineer Standing Orders, crew training and appropriate signage/physical barriers. Alternatively, holding tank arrangements should be provided to facilitate disposal ashore. Reference: MARPOL Annex IV, Chapters 1 and 3

Additional Comments

6.99 Additional Comments

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.

Structure and stability

General

7.1.1 Is the hull free from visible structural defects that warrant further investigation?

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

Check class reports and request NDT UWILD inspection data.

7.1.2 Are weather decks free from visible structural defects that warrant further investigation?

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

Check class reports.

7.1.3 Is the superstructure free from visible structural defects that warrant further investigation?

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

Check class reports.

If composite deck material use instead of steel, are there qualified personnel on-board to make repairs?

Inspectors shall verify that where composite materials are in use, permitted deckloads are known and not exceeded.

7.1.4 Are internal spaces free from visible structural defects that warrant further investigation?

Inspector is requested to pay particular attention to pump rooms and ballast tanks.

Request to sight UTI reports where applicable and any owners hull condition survey report or asset integrity reports.

Is there evidence of a ballast tank and enclosed space entry programme that is in use and up to date.

Inspectors shall request sight of NDT records of tanks and class reports to validate that steel internal stiffener and hull plating thickness and anode condition is being periodically monitored to meet class requirements. Where evidence of steel wastage requiring additional monitoring or repairs is evident the inspector shall record this.

7.1.5 If there has been any significant structural damage to the MO(D)U, have repairs been undertaken to the satisfaction of an attending Class surveyor?

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

7.1.6 Are hull penetrations physically free from defects and subjected to Class Survey?

Check that the planned maintenance system covers the checking and maintenance of valves and top plate assembly of hull penetrations.

7.1.7 Has there been any significant modifications to the MO(D)U that have affected the variable deck load?

If modification performed, has the additional weight been included in light ship log?

Has the class been involved with regards to validity of stability booklet?

Stability

7.2.1 Is there a designated person responsible for cargo and ballast operations?

Where Barge Master or BCO does not have a STCW/Nautical certificate of competency check that they have attended a Ballast Control Operators course. BCO's may also have certification from flag state.

7.2.2 Are stability records maintained on board in line with the MO(D)U Operators Procedure?

Calculations should include transits. Check and comment on any anomalies.

7.2.3 Is an approved stability book available on-board that includes both intact and damage stability scenarios?

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?

Class approved stability computers are not mandatory on MO(D)Us

If a loading computer/programme is not in use the inspector is to record a NO answer and record, in comments, how stress and stability calculations are performed.

If a loading computer/programme is in use the inspector is to determine if the computer/programme is approved by Class and record the observation in other comments.

1. Loading computer hardware type approval:

IACS Recommendation No. 48 recommends Class Approval of the hardware if the computer is the only nominated loading computer on board. If there are two nominated loading computers on board, one covering the failure of the other, then there is no recommendation for either to be type-approved.

2. For Stability Programme:

Class may have requirements for verification of programme results to those in approved test conditions.

The inspector should verify if test conditions are being checked by the unit in between class validations and record question 7.2.5 for operational checks by MO(D)U staff.

7.2.5 Are there records indicating that the operational accuracy of the load computer is tested regularly?

Class approved data should be used and the tests should be carried out at the annual survey on class approved equipment/software by the class surveyor.

Inspectors are to record comments if there is no evidence of class surveyors testing class approved stability equipment.

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

Typically, 4 x test conditions are found in a MO(D)U stability book and loading programme.

Inspectors are to verify those conditions are being simulated and checked for accuracy of computer output against the documented values in the stability book by the MO(D)U staff. (Chief Mate/Barge Engineer/Stability Section Leader)

Inspectors are to record if routine cross checking of stability computer accuracy forms part of the SMS/PMS requirements on board the unit.

7.2.6 Is the MO(D)U free from any known stability limitations as noted in the stability book?

Depending on MO(D)U 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. For semi sub MO(D)U's check for limitations when pontoons and major cross bracings are transiting the waterline.

7.2.7 Is there a system of verifying and recording the calibration of tank gauging systems and level alarms?

Report the frequency of manual soundings; 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.

On MO(D)US where no sounding pipes are in place confirm that a double sensor gauging system is in place and that discrepancy alarm settings have been established.

7.2.8 Do procedures require checking of differences between actual and calculated displacements and are records maintained?

Weight discrepancies (missing weights) should be assumed to be located at the main deck level or above. Inspectors shall record the difference in displacement between the loading computer and that provided by reading the actual drafts.

7.2.9 Are procedures in place to govern MO(D)U stability through all stages of the operation?

For example, jacking, floating, pre-loading, anchor handling and towing.

7.2.10 Are chain lockers, or other spaces at risk of flooding fitted with flood detection and permanently installed means to pump out?

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

7.2.11 Do all stability calculations plan for the worst possible case and the ability of the Semi-submersible MO(D)U to reach survival draft in 3 hours?

7.2.12 Are emergency ballast drills being conducted on a regular basis?

Inspectors are to record the required SMS frequency of ballast/stability drills and confirm that drills are being performed in accordance with the documented schedule.

7.2.13 Can the BCO's demonstrate the emergency ballast control sequences?

Inspectors are to validate if generic procedures or checklists are available in Emergency response manuals or similar that provide guidance to Chief Mates /Barge Masters and BCOs on the actions to take in the event of a stability / ballast event.

7.2.14 Is the necessary technical information available for safe and efficient handling in normal and emergency situations?

- *Are transfer systems for cargo and ballast (including bulk cargo where appropriate), and associated monitoring and control systems pumps fully operational?*
- *Are operational procedures available and are operators familiar with these?*
- *Up to date pipeline diagrams, mimic diagrams etc., to be available in control room.*
- *Ballast operations are to be monitored and controlled to prevent loss of stability, excessive facility movement, tank overflow or over pressurisation.*
- *Engineering drawings for the MO(D)U are to be readily available on-board, legible and up to date.*
- *Are regular manual soundings taken to verify correct calibration of tank gauges?*
- *Verify that emergency ballast drills are conducted on a regular basis and emergency operating procedures verified during drills.*
- *Is there a Damage Stability Plan?*
- *Senior Marine Crew and Ballast Control Operators shall be adequately trained and should understand the survivability criteria, taking into account down flooding angles*
- *Have regular drills taken place using the emergency ballast and bilge control system?*
- *Describe the emergency pumping equipment held on-board, including portable pumps where available.*
- *Is there information which gives detailed operational guidance to ballast control staff in the following areas?*
- *Segregation of firewater, utility and ballast water systems*
- *Loss of stability and buoyancy, catastrophic loss of anchor lines*
- *Calculation of residual buoyancy and stability in damaged condition*
- *Calculation of load distribution in damaged condition*
- *Response calculations*
- *Identification of system redundancy and alternative valve operating modes*
- *Prior to operations/sail out, the completed results of the analysis should be available in the shore operations office.*

Structural Modifications

7.3.1 Has the MO(D)U's classification society been involved in assessing/approving any structural modifications to the MO(D)U?

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 MO(D)U's stability information has been updated when structural or mission specific equipment modifications have taken place?

Inspector should verify if stability changes have been approved by Class and confirm the latest approved revision of the stability book is available on board the unit.

7.3.3 If applicable, are the MO(D)U's Master or OIM and Officers fully aware of the changes to stability information as a result of the structural or mission specific equipment modifications?

Are changes tracked in Lightship data log?

Additions of structure and weight since the last inclining experiment or update to the stability book/programme shall be tracked in a light ship changes log maintained by the supervisor responsible for stability calculations.

Inspectors should seek sight of the light ship changes register and confirm that items are tracked by location with weights VCG and LCG entered and it is up to date. Supervisory personnel should demonstrate a clear understanding on the effect of structural additions on Variable Deck Load/Displacement.

7.3.4 If structural modifications have been undertaken, do they agree with the details recorded on the OVPQ?

Inspector should verify that the OVPQ has accurately recorded any modifications that have been made to the MO(D)U.

7.3.5 Are all tank vents equipped with an automatic means of preventing water ingress and terminate above the worst case damaged waterline?

Verify against Load line requirements and 'Record of Conditions of Assignment'/load line supplement.

Inspector should do a random check against the 'record of Condition of Assignment/Load line supplement- i.e. partial Load line survey. Inspector to spot check position of tank vents against LL certification/supporting docs.

Additional Comments

7.99 Additional Comments

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.

Operations

MO(D)U - Drillship / Semi-Submersible

8.1.1 Does the MO(D)U have on-board a copy of the Class Approved Marine Operations Manual?

A Class approved Marine Operation Manuals containing guidance for the safe operation of the MO(D)U for both normal and emergency conditions should be on-board.

Confirm last updated version.

Confirm if marine operation manual is geographic region specific (specify regions) or unlimited.

8.1.2 Are the obstruction lights and fog signals operating correctly and are use of signals covered in SMS procedures?

Light and sound signals should include the Morse letter "U", where appropriate. SOLAS / IRPCS requirement (per flag and coastal state requirements).

8.1.3 Does the MO(D)U have a set of emergency procedural hazard management plans and procedural prompt cards which assist the Master/OIM in the decision making process of a vessel that proposes a risk of collision to the MO(D)U?

This relates to scenarios when the MO(D)U is on location drilling and:

- *May be subject to collision risk from passing vessels in transit rather than support vessels;*
- *May be hampered in its ability to take avoiding action due to being moored or connected to the seabed by the drilling riser.*

8.1.4 Does the MO(D)U have a fully updated Data Card to provide to the attendant vessels?

It is considered a best practice for any offshore installation, fixed or mobile, to provide a data card to attendant vessels which documents communications channels, bulk connection locations and sizes and crane locations. Examples of an installation data card are contained within GOMO.

8.1.5 Does the MO(D)U have a risk assessment for the collision potential with attendant and other passing vessels?

8.1.6 Does the MO(D)U have contingency plans for collision potential with attendant and other passing vessels?

8.1.7 Does the MO(D)U have an adverse Weather side Working Policy?

Inspectors shall determine if the unit has procedures in its SMS or operational checklists that verify how weather side working of support vessels is managed and what additional controls and limits are put in place before weather side working is permitted.

8.1.8 Is there a competent person in charge of ballast control and stability calculations?

All personnel involved in ballast control operations should be trained and certified in line with IMO Resolution A.891(21).

8.1.9 Can the Ballast Control Operators demonstrate knowledge of the MO(D)U's ballast system, the control of free surface effects and the consequences of inadvertent ballast shift?

Demonstrated via induction and vessel specific training records. To be capable of taking semi to storm draft if required.

8.1.10 Can the MO(D)U's stability be calculated without extensive calculations?

Check the Marine Operations Manual for guidance on calculating stability as well as the stability book. BCO's should know the operating inclination limits of the ballast control system, this should be stated in on-board documentation. Class approved stability calculation program should be available with test cases.

8.1.11 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 responsible crew understand any limitations?

Inspectors should determine that prior to transfer of cargo or ballast, calculations have been made for stress and stability

conditions for the start, interim and completion of transfer conditions. Regular monitoring of stress and stability should be taking place throughout cargo or ballast transfer to ensure that the conditions have been maintained within design limits.

8.1.12 Is there an inclinometer located near the ballast control panel?

8.1.13 If fitted are remote reading draft gauges operating correctly?

Inspectors shall check if the unit has a procedure of process for calibration and cross reference to visual and loading computer values.

8.1.14 Are draft marks clearly visible?

8.1.15 Is there a system for managing manual inputs into the stability programme?

System of cross checking to assure manual inputs.

Inspector to verify that inventories of variable weights appear reasonable and accurate. Deck loads should be maintained within the operating manual stability criteria and contingencies are addressed in the daily stability calculations, including maintaining stability criteria if the BOP stack and riser must be pulled and if the MO(D)U must go to storm draft.

8.1.16 Is there a system for recording changes to the MO(D)U's lightweight condition?

Documented procedure with record sheets showing additions/deletions since last inclining experiment conducted. Look for a register being maintained either as a stand alone document or as a page in the stability programme and an MOC process to incorporate changes permanently in stability book/programme revisions.

8.1.17 Are lightweight changes effectively incorporated into stability calculations?

Look for a register being maintained either as a stand alone document or as a page in the stability programme and an MOC process to incorporate changes permanently in stability book/programme revisions.

8.1.18 Are the ballast and bilge systems covered by an FME(C)A?

Check that - the FME(C)A class approved is accurate to the "as built"

8.1.19 Is there a system for controlling the inhibiting of bilge and ballast system alarms?

Any inhibit to the alarms should be tracked, risk assessed and approved by the OIM/Master per company procedure.

8.1.20 Is access to the ballast control panel restricted?

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

8.1.21 Is the ballast control position attended 24/7?

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

8.1.22 Are up to date piping and instrumentation drawings available for the bilge and ballast systems?

Check plans are controlled and do not have manual corrections. Ballast valves should be labelled locally with valve number and tank served.

8.1.23 If a cross connection exists between port and starboard ballast tanks/systems, is there a procedure in place to prevent inadvertent transfer of ballast?

Check that piping P&ID are controlled and do not have manual corrections. Ballast valves should be labelled locally with valve number and tank served. Valve to be marked and operated only under approval of OIM etc. Applicable for Semisub operations

8.1.24 Do ballast system valves fail to the closed position in the event of power failure?

Check that Ballast manuals state how the system fails and that BCO's are aware of the failure mode.

8.1.25 Can ballast system valves be operated in the event of power failure?

Via stored pressure accumulators or hand power packs. Is the hand operated power pack available and identified as critical equipment. Do personnel know how to use the equipment?

Record date of last test.

8.1.26 Is the ballast system effectively isolated from the bilge system?

State method of isolation e.g. remote control valve and non-return valve. Inspector to verify when the cross connection (where applicable) was last tested and how the integrity of the cross over valve is assured.

8.1.27 Do all tank vents terminate above the worst case damaged waterline?

Verify position of tank vents against Load Line certification/supporting docs.

8.1.28 Is the ballast system capable of restoring the unit to a draft not exceeding the limiting draft specified in the operating manual, with no trim or list, following damage to and flooding of any single watertight compartment?

Is it possible to pump out every ballast tank after flooding?

Where applicable inspector to confirm the operational/ test status of the secondary ballast system and Operators familiarisation of the system including operation under normal and emergency conditions. Power supplies to the secondary systems to be confirmed as available under normal and emergency conditions.

8.1.29 Can more than one pump be aligned to pump out each ballast tank?

The pumps should be physically separated so that loss or damage to one pump will not adversely affect the other pump. The inspector should verify that at least one pump can be powered from the Emergency Generator Switchboard. Column Stabilized units are required to have pumps and valve control systems on the Emergency Bus.

Check for power arrangement to pumps and how ballast valves can be controlled /operated.

Is a hand pump available and allocated for the ballast hydraulics panel as a contingency measure.

8.1.30 Is the pump room emergency bilge suction valve clearly marked, fitted with a position indicator and capable of remote operation?

Is there evidence of when and how the function of the emergency bilge suction was tested. I.e. actual test or assurance process is by visual examination and freedom of movement checks on a regular basis.

8.1.31 Is the emergency bilge suction and pump tested and are records maintained?

Inspectors shall check if the unit has a procedure of process for calibration and cross reference to visual and loading computer values.

Inspectors should be aware that on drill-ships and semi submersibles there may be several pump rooms and machinery spaces which each have an emergency bilge suction/discharge system.

8.1.32 Are all cement silos and associated valves, pumps, vents and air supplies fully tested and in good order?

Verify operating procedures are in place Check PMS or deck records for operation of systems and inspections a testing.

8.1.33 Are all mud and brine tanks, pumps, valves and pipeline systems in good order and fully tested?

Verify operating procedures are in place Check PMS or deck records for operation of systems and inspections a testing.

8.1.34 Does the MO(D)U have procedures covering towing?

The contingency plan should include MOB, measures to be taken following the loss of tow, towline parting, propulsion failure and the onset of adverse weather, including heaving to and taking shelter. Refer to IMO MSC/Circ. 884

8.1.35 Is the primary towing gear in good order?

Inspectors shall confirm that where towing gear is fitted that

- *A drawing (or description) of the towing equipment set up is available*
- *An up to date certification package for all towing equipment which includes certificates of manufacture stating Minimum Break Loads (MBL)/Working Load Limit (WLL)/ Ultimate Load Limit (ULL) is available*
- *Inspection records post manufacture and installation for all towing equipment components are in place*
- *NDT/Eddy current records for structural towing equipment (Smit brackets, Delta/Tri-plate/Shackles) are in place*

Note it is common practice for certificates to be issued by testing houses which state Proof Loads and Safe Working Loads which are not representative of the Bollard Pull requirements and Minimum Break Load properties for towing gear.

Inspectors shall verify if the MBL of equipment is in the order of 2x the Required Bollard Pull as defined the marine Operations Manual.

A record of usage of towing gear is recorded.

8.1.36 Is the secondary/emergency towing gear available and in good order?

The strength of the emergency towing gear is to be confirmed and if of a lower strength than the main towing gear then the inspector shall make a comment to record that fact. Certification and documentation of the emergency towing gear shall be checked as for main towing gear

- *A drawing (or description) of the towing equipment set up is available*
- *An up to date certification package for all towing equipment which includes certificates of manufacture stating Minimum Break Loads (MBL)/Working Load Limit (WLL)/ Ultimate Load Limit (ULL) is available*
- *Inspection records post manufacture and installation for all towing equipment components are in place*
- *NDT/Eddy current records for structural towing equipment (Smit brackets, Delta/Tri-plate/Shackles) are in place*

Note it is common practice for certificates to be issued by testing houses which state Proof Loads and Safe Working Loads which are not representative of the Bollard Pull requirements and Minimum Break Load properties for towing gear.

Inspectors shall verify if the MBL of equipment is in the order of 2x the Required Bollard Pull as defined the marine Operations Manual Check that certificates are available for all components. MBL, WLL/SWL and PL.

In case of selection of N/A, the inspector to state why this option was selected.

8.1.37 Are move procedures supported by a formal risk assessment?

Are move procedures supported by a formal risk assessment?

MO(D)U - Jackup

8.2.1 Does the MO(D)U have on-board a copy of the Class Approved Marine Operations Manual?

An up to date, class approved Marine Operation Manuals containing guidance for the safe operation of the MO(D)U for both normal and emergency conditions should be on-board.

Confirm last updated version.

Confirm if marine operation manual is geographic region specific (specify regions) or unlimited.

8.2.2 Are the obstruction lights and fog signals operating correctly and are the use of signals covered in SMS procedures?

Light and sound signals should include the Morse letter "U", where appropriate. SOLAS / IRPCS requirement (per flag and coastal state requirements)

8.2.3 Do the emergency procedures cover additional risks associated with the MO(D)U's operations?

E.g. loss of stability/watertight integrity, loss of moorings/station keeping, emergency disconnect, helicopter accidents, severe weather, tidal waves, tsunamis, solutions?

Procedures to be available on-board, evidence that personnel are familiar with them.

8.2.4 Is the CoG and variable loads of the unit being monitored continuously throughout the MO(D)U operations?

Inspectors should determine that prior to transfer of cargo, calculations have been made for load and stability conditions to ensure that the conditions have been maintained within design limits.

8.2.5 Is there an inclinometer located near the jacking control panel?

Inspector should confirm system(s) are fully operational and detail type of system(s) in use.

8.2.6 Are remote reading draft gauges operating correctly?

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

8.2.7 Are draft marks clearly visible?

8.2.8 Is there a system for managing manual inputs into the stability programme?

System of cross checking to assure manual inputs. Inspector to verify that inventories of variable weights appear reasonable and accurate. Deck loads should be maintained within the operating manual stability criteria and contingencies are addressed in the daily stability calculations, including maintaining stability criteria if the BOP stack and riser must be pulled.

8.2.9 Is there a system for recording changes to the MO(D)U's lightweight condition?

Documented procedure with record sheets showing additions/deletions since last inclining experiment conducted. Look for a register being maintained either as a stand alone document or as a page in the stability programme and an MOC process to incorporate changes permanently in stability book/programme revisions.

8.2.10 Are lightweight changes effectively incorporated into stability calculations?

Look for a register being maintained either as a stand alone document or as a page in the stability programme and an MOC process to incorporate changes permanently in stability book/programme revisions.

8.2.11 Is there a system for controlling the inhibiting of bilge and ballast system alarms?

Any inhibit to the alarms should be tracked, risk assessed and approved by the OIM/Master per company procedure.

8.2.12 Is access to the jacking control panel restricted?

System to be in place to prevent unauthorised operation of jacking system. Inspector to detail method of control used.

8.2.13 Is the jacking control position attended continuously during jacking and pre-loading operations?

Jacking control to be manned continuously to ensure prompt action can be taken when required.

8.2.14 Are up to date piping and instrumentation drawings available for the bilge and preload systems?

Check plans are controlled and do not have manual corrections. Ballast valves should be labelled locally with valve number and tank served.

8.2.15 If a cross connection exists between port and starboard ballast tanks/systems, is there a procedure in place to prevent inadvertent transfer of ballast?

Check plans are controlled and do not have manual corrections.

8.2.16 Do preload system valves fail to the closed position in the event of power failure?

Inspector to verify how preload valve system fails and focal points are aware.

8.2.17 Can preload system valves be operated in the event of power failure?

Via stored pressure accumulators or hand power packs. Is the hand operated power pack available and identified as critical equipment.

Do personnel know how to use the equipment?

Record date of last test.

8.2.18 Is the preload system effectively isolated from the bilge system?

State method of isolation e.g. remote control valve and non-return valve.

Inspector to verify when the cross connection (where applicable) was last tested and how the integrity of the cross over valve is assured.

8.2.19 Is the bilge and preload system fully operational and tested?

Inspector to verify through previous MO(D)U move report/record of last test date.

8.2.20 Are all cement silos and associated valves, pumps, vents and air supplies fully tested and in good order?

Verify operating procedures are in place Check PMS or deck records for operation of systems and inspections a testing.

8.2.21 Does the MO(D)U have a risk assessment for the collision potential with attendant and other passing vessels?

8.2.22 Does the MO(D)U have contingency plans for collision potential with attendant and other passing vessels?

8.2.23 Does the MO(D)U have a set of emergency procedural hazard management plans and procedural prompt cards which assist the OIM in the decision making process of a vessel that proposes a risk of collision to the MO(D)U?

This relates to scenarios when the MO(D)U is on location jacked up drilling and may be subject to collision risk from passing vessels in transit rather than support vessels.

8.2.24 Does the MO(D)U have a fully updated Data Card to provide to the attendant vessels?

It is considered a best practice for any offshore installation, fixed or mobile, to provide a data card to attendant vessels which documents communications channels, bulk connection locations and sizes and crane locations. Examples of an installation data card are contained within GOMO.

8.2.25 Does the MO(D)U maintain a log containing information of attendant vessels and information from shore side logistics?

8.2.26 Does the MO(D)U have an adverse Weather side Working Policy?

Inspectors shall determine if the unit has procedures in its SMS or operational checklists that verify how adverse weather side working of support vessels is managed and what additional controls and limits are put in place before weather side working is permitted.

8.2.27 Are all mud and brine tanks, pumps, valves and pipeline systems in good order and fully tested?

Verify operating procedures are in place.

Check PMS or deck records for operation of systems and inspections a testing.

8.2.28 Does the MO(D)U have procedures covering towing?

The contingency plan should include MOB, measures to be taken following the loss of tow, towline parting, propulsion failure and the onset of adverse weather, including heaving to and taking shelter. Refer to IMO MSC/Circ. 884.

8.2.29 Is the primary towing gear in good order?

Inspectors shall confirm that where towing gear is fitted that;

- *A drawing (or description) of the towing equipment set up is available*
- *An up to date certification package for all towing equipment which includes certificates of manufacture stating Minimum Break Loads (MBL)/Working Load Limit (WLL)/ Ultimate Load Limit (ULL) is available*
- *Inspection records post manufacture and installation for all towing equipment components are in place*
- *NDT/Eddy current records for structural towing equipment (Smit brackets, Delta/Tri-plate/Shackles) are in place*

Note it is common practice for certificates to be issued by testing houses which state Proof Loads and Safe Working Loads which are not representative of the Bollard Pull requirements and Minimum Break Load properties for towing gear.

Inspectors shall verify if the MBL of equipment is in the order of 2x the Required Bollard Pull as defined the marine Operations Manual A record of usage of towing gear is recorded.

8.2.30 Is the secondary/emergency towing gear available and in good order?

The strength of the emergency towing gear is to be confirmed and if of a lower strength than the main towing gear then the inspector shall make a comment to record that fact.

Certification and documentation of the emergency towing gear shall be checked as for main towing gear

- *A drawing (or description) of the towing equipment set up is available*
- *An up to date certification package for all towing equipment which includes certificates of manufacture stating Minimum Break Loads (MBL)/Working Load Limit (WLL)/ Ultimate Load Limit (ULL) is available*
- *Inspection records post manufacture and installation for all towing equipment components are in place*
- *NDT/Eddy current records for structural towing equipment (Smit brackets, Delta/Tri-plate/Shackles) are in place*

Note it is common practice for certificates to be issued by testing houses which state Proof Loads and Safe Working Loads which are not representative of the Bollard Pull requirements and Minimum Break Load properties for towing gear.

Inspectors shall verify if the MBL of equipment is in the order of 2x the Required Bollard Pull as defined the marine Operations Manual Check that certificates are available for all components. MBL, WLL/SWL and PL.

8.2.31 Are the bridles and securing points free from defects?

Verify smit brackets are operable/note date of last NDT; This should include but not be limited to: - pad-eyes, bitts, chocks, bridles, wires, chains, bridle recovery system.

8.2.32 Are the towing brackets and fairleads inspected and certified?

Inspector to check brackets on rig stern and quarters used for connection of towing pennants for rig positioning. Minimum number of stern towing brackets:

Stern Transom: Two - One on each side of centre-line

Stern quarters: Two - One each on port and starboard stern quarters

8.2.33 Are tow points and ancillary equipment included within the preventative maintenance system?

This should include but not be limited to: - pad-eyes, bitts, chocks, bridles, wires, chains, bridle recovery system.

8.2.34 Can the responsible person demonstrate knowledge of the MO(D)U's Jacking system, the control of free surface effects and the consequences of inadvertent ballast shift?

Demonstrated via induction and vessel specific training records.

8.2.35 Does the marine operations manual include Jacking Operations and are the procedures documented relevant and a true reflection of operations on board the unit?

A Class approved Marine Operations Manual should be placed on board the unit to comply with MO(D)U code requirements.

8.2.36 Does the MO(D)U have a pre-move checklist available

Review list of items required to be checked, are they linked to the Marine Operations manual and cover the items in the Manual.

Are checklist in the manual the checklists in use?

Checklist may be held by each individual department. Checklist in use should be the same as listed in Marine Operations manual.

8.2.37 Are there clear policies and procedures for jacking operations? Are the limits clear?

Review Marine Operations Manual and confirm this agrees with MO(D)U move checklist and other documented MO(D)U move procedures.

Is the limiting sea state documented for jacking understood by the MO(D)U staff and aligned to individual MO(D)U move procedures and plans.

8.2.38 Do procedures include clear guidance on preloading for MO(D)U staff?

Review preload procedures. Control/duration, philosophy for locations with anticipated rapid leg penetration.

8.2.39 Are contingencies in the event of rapid leg penetration/punch through addressed?

Review preload procedures. Control/duration, philosophy for locations with anticipated rapid leg penetration.

8.2.40 Is it possible to identify leg depth indication and leg load remotely?

Check where indication is possible via readouts/gauges and how this is translated into leg penetration taking into account water depth, tide and air gap/elevation.

8.2.41 Does the MO(D)U have a towing/transit plan and has a PIC/Tow Master been designated?

8.2.42 Is the Jacking control station fully functional?

Inspector to check with responsible person if the jacking control station is fully operational and that all remote controls and indicators are operational. If not are the faults identified in MO(D)U Maintenance System and they been assigned critical priority?

8.2.43 If applicable, are there procedures in place for operations involving moving the unit alongside a platform?

Indicate if the procedures for moving the unit alongside a platform are with or without the use of anchors.

8.2.44 If applicable, are there procedures in place for anchor handling operations?

8.2.45 Is there a record of MO(D)U moves and operational performance of equipment maintained?

Check for previous MO(D)U move reports and evidence of any issues with equipment and determine if they are resolved through maintenance systems and operational procedure review and update.

8.2.46 Are the rose boxes in the bilge system free of debris and clear?

Inspector to sight verify.

8.2.47 Does the operator have procedures in place for Site Specific Assessments to assess leg strength, storm loading, leg penetration and punch through?

Determine if the operator has a standard policy/procedure for Site Specific Assessment. Identify if SNAME/ API standards are used and identify what standards are used.

8.2.48 Are there risk assessments in the procedures and can they demonstrate risk assessment for all MO(D)U moves?

8.2.49 Is there a management of change process in place for the facility to change the MO(D)U move procedures?

8.2.50 Are there weather limits for MOD(U) moves?

This should be stated in operations manual.

8.2.51 If fitted, is the mooring arrangement and connections to moor supply vessel on rig legs inspected and maintained?

Mooring lines are passed from rig to the supply vessels to secure the rig's starboard and port quarters for non DP mode vessel operations.

Accommodation/Flotel

8.3.1 Are there sufficient marine crew to operate mooring anchors, DP systems and gangway operations concurrently?

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

8.3.2 When vessel/unit is gangway connected to installation, are station keeping parameters well publicised and adhered to?

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

8.3.3 Are all cabins either single, two person or 'shift segregated' to ensure no out of hours disturbances?

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.

8.3.4 Is a person designated as being in charge of personnel welfare on board?

The identification and contact information should be well publicised to all

8.3.5 Are mess rooms and common rooms clean and tidy with controls ensuring working gear is not worn?

8.3.6 Are additional regular fire rounds made by crew in all accommodation and service areas?

This should also include temporary accommodation modules.

8.3.7 Is the Flotels/accommodation barge classed as accommodation barge /flotel?

Verify if the flotel/accommodation barge is classed as accommodation barge or if the certificate includes the notation accommodation barge.

8.3.8 Is a POB control system in place?

Are procedures in place to control the POB - registration of passengers upon arrival

8.3.9 Are procedures available to control personnel movements between the flotel and the installation if connected?**8.3.10 Is the person in charge for the POB control trained for his task?**

What training has been provided?

8.3.11 If fitted, is there a FME(C)A for the automatic gangway system?

FME(C)A should be independent from the supplier or endorsed by a classification society or authority.

8.3.12 If fitted, has the automatic disconnect of the gangway system been tested to its full extent?

Verify if the system fully retracts/lifts/slews to its extents. State how frequently this is carried out and when it was last tested.

8.3.13 If fitted, is there a functional design document detailing the normal and emergency disconnect operating philosophy of the automatic gangway?

All automatic functions are defined through a logic diagram, or equivalent documentation.

8.3.14 If fitted, are the automatic gangway operating limits referenced against vessel motions and metocean conditions, and are they defined within an Activity or Site Specific Operating Guideline (ASOG/SSOG) which defines when gangway operations shall be suspended?

ASOG/SSOG defines in metocean conditions and vessel motion the time to close the gangway, perform a manual disconnect and when to move the defined safe standoff position.

8.3.15 If fitted, is the maintenance of the automatic gangway included in the planned maintenance system of the flotel/accommodation barge?

Verify if planned maintenance is carried out as per PMS system.

8.3.16 If fitted, are emergency procedures in place for the disconnection of the gangway?

When are these emergency procedures activated (weather limitations - loss of position - gas alarm) is the disconnection done by remote control or at the gangway? There is no initiation remote control reference of a gangway disconnect where it is automated.

8.3.17 Are specific changing rooms with lockers available in order to allow personnel changing work clothes prior entering the accommodation?**8.3.18 If fitted, is the garbage compactor and/or incinerator in good operational condition?****8.3.19 Are smoke/fire detection systems available in all cabins and common places?**

Verify if alarm/detection systems are tested regularly and if they are included in the Vessel PMS.

8.3.20 Are public address and audio alarms operational inside the accommodation and common places?

Verify if systems are operational and regularly tested weekly - monthly.

8.3.21 Are the noise level in the accommodation and common areas tested and recorded?

Measurements should be carried out at regular intervals Ref: IMO resolution A.468(XII)

8.3.22 Is evidence available that all materials used in the accommodations and common place are fire retardant?**8.3.23 Is the available cabin space and layout in line with regulations?**

Available space should be in function of the number of occupants of the room ILO 92 regulations.

8.3.24 If fitted are additional temporary accommodation modules connected to the central sewage system of the unit?

Verify if there is a connection to the central sewage system and if the additional units are included in the certification of the unit.

Additional Comments**8.99 Additional Comments**

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.

Mooring

General

9.1.1 If fitted, are certificates available for all mooring, wires, chains, shackles, etc.?

Test certificates for mooring lines and associated equipment should be kept maintained in a file clearly identifying each item.

9.1.2 If fitted, are there records of the inspection and maintenance of mooring, wires and equipment?

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

9.1.3 Is there a sufficient means of communication (primary and backup) to support mooring operations?

For example, UHF, VHF radios, telephones, tannoys, CCTV and talkback?

Mooring procedures

9.2.1 Are mooring lines secured to bitts turned up correctly?

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.

Note: Mooring lines must not be secured to winch warping drums.

9.2.2 Are all powered mooring lines correctly reeled on drums?

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.

9.2.3 If fitted are all powered mooring lines secured on brakes and are the winches out of gear?

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.

9.2.4 Are all mooring lines stowed neatly to minimise tripping hazards and are mooring areas clear and unobstructed?

Mooring ropes should be stowed on a grating away from chemicals and out of direct sunlight.

9.2.5 If the vessel/unit is equipped with fenders for mooring alongside, are they in good condition?

Including the fender mooring pennants and pickup arrangements.

9.2.6 Is there a maintenance system for the mooring equipment on board?

9.2.7 Are ferrule terminations in use?

Where harbour mooring wires are carried on board a MO(D)U, inspectors shall confirm the type of connections in use.

Where mechanical splice/ferrules are not in use the inspector shall answer the question No and record how connections are made.

Equipment

9.3.1 If fitted, are all mooring winches in good order?

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 If fitted, are mooring wires and ropes in good order?

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 If fitted, are pedestal fairleads, roller fairleads and other rollers well greased and free to turn and are bitts and chocks free of grooving?

Anchoring equipment

9.4.1 Are windlasses, anchors, locking bars and cables in a satisfactory condition and operating effectively?

Note: The condition of the locking bars should be checked to ascertain that they function correctly by locking the chain when the MO(D)U 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?

9.4.3 If fitted, are spurling pipes normally secured to prevent water ingress?

9.4.4 Are winch brake band tension setting known set and tested?

Inspectors should attempt to verify what tension setting is prescribed by the OEM and if this is being applied. Verify inspection routine (3rd party?)

Spread Mooring

9.5.1 Does the vessel/unit have procedures for spread mooring with anchors?

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?

FMEA should cover the reliability of spread mooring system (winch, power supply, availability of spares,) to ensure that unit will move away, without assistance, from working to weather stand-by location whenever required by offshore installation.

9.5.3 Is certification available for mooring chains, wires and ancillaries for each leg?

Spread Moored MO(D)U's should have accurate chain maps of all mooring lines including details of all kenter in the line, certificate numbers marked on chain maps.

9.5.4 Is there a system for monitoring and recording of mooring lines tension and lineout/scope of spread moored systems and are records maintained?

Inspectors shall document if there is a requirement to monitor line tensions and document how line tensions are being monitored e.g. manual logs or electronic recording.

9.5.5 Is there a system for maintenance and calibration of lineout, scope and tension meters and are records maintained?

Inspectors shall check where records of calibration are maintained.

9.5.6 Are the controls for local and, if applicable, remote winch/windlass operation in good order?

Are there appropriate procedures in place to demonstrate how the system is operated under emergency conditions?

i.e. Remote vs local control. Inspector to verify system has been operated in both local and remote modes and hence demonstrate operational awareness.

9.5.7 Are the emergency stops for winches/windlasses routinely tested and records maintained?

Record the date when the winch/windlass emergency release was last tested.

Additional Comments

9.99 Additional Comments

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.

Communications

General

10.1.1 Are instructions for operating the digital selective calling and satellite communications equipment in an emergency clearly displayed?

10.1.2 Are the MO(D)U's call sign and Inmarsat ship station identity clearly marked on the radio installation?

10.1.3 Can designated persons demonstrate a satisfactory understanding of how to operate communications equipment in an emergency?

10.1.4 Is a continuous listening watch maintained on VHF channel 16?

Look for evidence of 24hrs coverage on MO(D)U. This can be performed handing over to the bridge on a drillship or Mate/DPO on a semi.

10.1.5 Are personnel aware of the requirements for position updating on two-way communications equipment?

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 If fitted, is the AIS system fully functional?

10.1.7 Has a qualified person been designated to handle distress communications?

Every ship shall carry personnel qualified for distress and safety radio communication purposes to the satisfaction of the Administration.

Note: That person should not be the Master/OIM.

10.1.8 Are periodical tests of communications equipment carried out and recorded as required?

The following tests should be carried out:

Daily:

- *The proper functioning of the DSC facilities without radiation of signals;*
- *Battery voltage checks;*
- *Printer*

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.*

10.1.9 Is the Radio Log being maintained correctly?

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.

10.1.10 If applicable, are radio emergency batteries in a satisfactory fully charged condition and the battery log completed up to date?

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)

10.1.11 Are arrangements in place to ensure the availability of the radio equipment?

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)

10.1.12 Is the public address and any other internal communication system operable and tested regularly?

10.1.13 Are GMDSS requirements met with regard to qualified radio operator personnel, watchkeeping, and designation for distress communications?

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).

Equipment

10.2.1 Is the communications equipment in good order?

Notes: The minimum requirements for radio equipment for the MO(D)U 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 MO(D)U 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?

10.2.3 Is the MO(D)U equipped with portable radios for use on deck?

Note: Sufficient portable radios should be available to allow communications between the bridge/control rooms and all operational personnel.

10.2.4 Are there procedures for radio silence?

Verify procedures for restricting use of all radios within the 500m zone.

Additional Comments

10.99 Additional Comments

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.

Propulsion, Power generation and machinery

Policies, procedures and documentation

11.1.1 Is the MO(D)U provided with operator's instructions and procedures?

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?

STCW/ISM as applicable.

11.1.3 Is the engine logbook fully maintained?

At a minimum in compliance with Flag State requirements.

11.1.4 If the machinery space is being manned, are there sufficient engineering staff?

Ensure manning level is in compliance with Safe Manning Cert.

11.1.5 Has the chief engineer/maintenance supervisor written his own standing orders?

Notes: Standing orders should be checked to ascertain that all applicable persons 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 MO(D)U, the trade and the experience of the applicable persons aboard at the time. It should be updated and signed by each chief engineer/maintenance supervisor as they join the MO(D)U.

11.1.6 Have the applicable persons countersigned the chief engineer / maintenance supervisor's standing orders as read and understood?

11.1.7 Are there procedures to restart critical equipment?

Note: Written procedures should be readily available within the engine room which should be specific to the particular MO(D)U in order to identify relevant controls.

11.1.8 Are engineers familiar with restart procedures and are records available of exercises and drills?

11.1.9 Does the operator subscribe to a fuel, lubricating and hydraulic oil testing programme, and is there a procedure in place to take into account the results?

Report which groups of oils are subject to testing programme and frequency of testing (i.e. Fuel oils, main engine lube oils, hydraulic oils, thermal oils etc. Verify the latest lube oil sample analysis is free from deficiencies.

Record any deficiencies found.

11.1.10 Are detailed bunker transfer instructions available?

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 on-board 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 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 clean-up 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.

11.1.11 If the machinery space is certified for unmanned operation, is it being operated in that mode?

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.

11.1.12 Is the dead man alarm system, where fitted, in good order and used as required? (This alarm may also serve the function as engineers call alarm.)

The personnel alarm should automatically give an alarm on the navigating bridge/control room or in the engineers 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)

Planned Maintenance

11.2.1 Is a planned maintenance system in place, being followed and is it up to date?

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 MO(D)U 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 safety critical equipment identified in the planned maintenance system?

11.2.3 Is an accurate and up to date inventory of spare parts being maintained?

Check that spare parts for critical equipment are specifically addressed. Are critical spare parts identified?

Safety Management

11.3.1 If an engineer's call alarm is fitted, is it in good order and tested regularly with the results recorded?

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. Applicable to self propelled MO(D)U's

11.3.2 Are emergency escape routes clearly marked, unobstructed and adequately lit and are the lights covered?

11.3.3 Is the level of lighting in all areas of the machinery spaces satisfactory and are the lights covered?

Also ensure all lights in the engine compartment and machinery spaces are covered.

11.3.4 Are MO(D)U's engine/boiler exhausts fitted with spark arresters for safe operation?

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?

Notes: Emergency equipment will include, where fitted, the 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 off's clearly marked and do records indicate that they have been regularly tested?

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 jacketed or screened?

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?

Surfaces with temperatures above 220C 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?

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?

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 generator engine bearing temperature monitors, or the crankcase oil mist detector, in good order?

Inspector to check testing procedures.

11.3.12 Where hydraulic aggregate pumps are located within the main engine compartment, is an oil mist detector fitted?

Note: In MO(D)U 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?

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 the switchboard / breaker protection tested regularly?

State the last test date and results.

11.3.15 Are emergency electrical power supplies fully operational?

11.3.16 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?

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. (USCG 46 CFR 111.30-11)

11.3.17 Are gauge glass closing devices on oil tanks of a self-closing, fail-safe type and not inhibited?

11.3.18 Are self-closing sounding devices to double bottom tanks in good order, closed and capped?

Load line requirement where applicable.

11.3.19 Are all items of moving machinery which may present a hazard provided with guards?

Grinders, air compressor belt drives, vent fans, lathe, drill press etc.

11.3.20 Are workshop machine tools in a safe condition and is eye protection available?

11.3.21 Is all loose gear in the machinery spaces, stores and steering compartment properly secured?

11.3.22 Are chemicals properly stowed and are Material Safety Data Sheets available?

Note: Protective equipment as written on the MSDS.

11.3.23 Is there a Risk Assessment System in place for the carriage and handling of chemicals?

Have assessments been completed for all/new identified substances? Reference COSHH or other industry best practice.

Have assessments been communicated to the relevant personnel?

Do personnel use the assessments?

Are re-assessments carried out and conveyed to the relevant personnel?

11.3.24 Are machinery spaces clean and free from obvious leaks and is the overall standard of housekeeping and lagging maintenance in good order?

Workshops, compressor rooms, chemical stores, spare gear stores, electricians store/workshop should be checked.

11.3.25 Are bilge systems operational and bilges free of oil, rubbish and sediment?

Note: Oily areas indicate a lack of maintenance and cleanliness. However, a small amount of oil in save-alls should not be considered unsatisfactory.

11.3.26 Are bilge high level alarm systems regularly tested and are records maintained?

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.

11.3.27 Are seawater pumps, sea chests and associated pipework in good order and free of hard rust and temporary repairs, particularly outboard of the ship-side valves?

Look for divers inspection records of sea chest strainers as well as PMS records of strainers being changed/inspected.

Check over boards and sea chest for back flushing lines and any records of back flushing sea chests.

Is there an 'exercise' program for the sea valves and how is the seal integrity assured?

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.

11.3.28 Are valves and pipework marked or colour coded?

Inspector to determine a common system of colour coding for essential services is provided (e.g. fire water, foam, fuel oil, ballast, etc.).

Machinery Status

11.4.1 Are all items of main, auxiliary and emergency plant in good order and reported to be fully operational?

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 If applicable, 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?

Note: Procedures should be readily available for this method of operation. May not be applicable to 4th generation or newer MO(D)U's.

11.4.3 Are concise starting instructions for the emergency generator, where fitted, clearly displayed?

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.

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?

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 If applicable, have alternate generator arrangements including emergency circuit load sharing and power management been tested and proven?

11.4.6 Is all electrical equipment including junction boxes and cable runs in good order?

11.4.7 Are switchboards free of significant earth faults?

Note: Class rules require a minimum insulation resistance of 1 mega ohm (1 million ohms).

Emergency Steering

11.5.1 If applicable, is the steering gear/steering compartment(s) free from defects?

11.5.2 If applicable, has the emergency steering arrangement been tested within the past three months and are the results recorded?

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 If applicable, are emergency steering changeover procedures clearly displayed locally and in the wheelhouse?

11.5.4 If applicable, are officers familiar with the operation of the steering arrangement in the emergency mode?

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.

11.5.5 If applicable, is the steering gear emergency reserve tank fully charged?

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 If applicable, are the arrangements for the provision of heading information available?

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 If applicable, are communication arrangements with the Bridge/Steering compartment satisfactory?

Check that the arrangements take into account noise levels within the space.

11.5.8 If applicable, is there a means for indicating the rudder angle or thruster direction at the emergency steering position?

Thrusters include azimuth thrusters.

11.5.9 If applicable, is access to the emergency steering controls unobstructed?**11.5.10 If applicable, in steering compartments, are suitable handrails, gratings or other non-slip surfaces provided?**

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.

Additional Comments**11.99 Additional Comments**

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.

General Appearance and Condition

Hull, superstructure and external weather decks

12.1.1 Is the general condition, visual appearance and cleanliness of the hull satisfactory?

Is there evidence of coating break down or hull damage?

12.1.2 Are hull markings clearly indicated and correctly placed?

The MO(D)U'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,*

The following should also be clearly indicated, where applicable:

- *the MO(D)U's name;*
- *load lines;*
- *draft marks;*
- *thruster warnings;*
- *tug push points.*

12.1.3 Is the general condition, visual appearance and cleanliness of the external decks in good order including non-slip surfaces in working areas and access routes?

12.1.4 Does the structure include arrangements designed to minimise hazards associated with falls from heights and maintained in accordance with design bases? e.g. rails, platforms, back-scratchers.

Is there evidence of home-made devices/repairs/structural maintenance?

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?

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 not 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?

Are all watertight doors operating correctly, with seals in good condition?

Timing, alarms etc. shall be as per MO(D)U/SOLAS code.

Weather tight integrity as well as watertight integrity as per the Load line certification found in good order?

Sample examination of items as per Record of assignment/Load line certificate supplement.

How is integrity/fit of seal demonstrated, i.e. chalk test/hose test -other.

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?

Check for warning lights, buzzers, alarms and verify procedures for personnel passing through the door. All personnel

should have received instruction in the operation. Signs giving operating instructions should be posted on either side of the doorway. Local, Remote and emergency operations all tested.

12.1.8 Where fitted/required Are all watertight door position indicators operating correctly?

Indicators should be available at remote operating and control stations. Lamp test function available?

Are the indicators visible under all environmental conditions e.g. bright lighting

12.1.9 Are all cable transits and bulkhead penetrations correctly assembled?

Are there any open penetrations; or penetrations that appear to have been altered; or penetrations with packing that appears disturbed or insufficient?

If the vessel/unit is DP3, cable transits should be double-glanded.

12.1.10 Is a programme in place that covers the periodic inspection of all tanks, void spaces, chain lockers and cofferdams, and their coatings?

12.1.11 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?

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.

12.1.12 Is the general condition, visual appearance and cleanliness of the superstructure satisfactory?

Paint/Coating condition etc.

Electrical Equipment

12.2.1 Is deck lighting functional?

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 life raft/ life boat / muster area / side lighting 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?

Is there secondary drops containment for the lights / is there evidence of water ingress in the fixture / is the class of lighting and electrical equipment easily identifiable?

12.2.3 Is the condition of electrical equipment in the accommodation satisfactory?

All electrical installations shall be installed in a safe manner, and in accordance with good workmanship. Residential surge protectors/ UPS's

Internal Spaces

12.3.1 Are internal spaces and storerooms clean and tidy?

Accommodation Areas

12.4.1 Is the accommodation clean and tidy?

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?

Marked with luminous strip indicators/lighting/signage.

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?

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.

- *Test personnel alarms for refrigerated spaces;*
- *Food storerooms and refrigerated spaces to be in a hygienic condition. Carry out random check of food stocks to ensure stock is being rotated and is not out of date;*
- *Refrigerated spaces to be maintained at an appropriate temperature;*
- *Galley extraction grills to be clean and free from grease;*
- *Galley fire extinguishing systems to be in good order and catering workforce aware of locations and means of operation;*
- *Food preparation areas to be tidy and clean.*
- *Chain mail glove for carving meat, etc. is to be available.*
- *No cracks in tiles or linoleum*

12.4.4 Are laundries and drying rooms free of accumulations of flammable materials that could constitute a fire hazard?

Dryers and duct work to be free from excessive lint build up. Is there procedures for cleaning ducts?

12.4.5 Is the level of accommodation lighting functional?

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?

No jury rigged electrical appliances or overloaded sockets. Residential surge protectors/ UPS's

12.4.7 Are personnel alarms local and remote in refrigerated spaces in good order and regularly tested?

12.4.8 Do the food storage areas appear to be kept in good order?

Dry food kept > 6 inches from deck. Stored away from direct sunlight. No obvious signs of pest infestation. Sufficient lighting and ventilation. Evidence of regular cleaning/inspection.

12.4.9 Are emergency escape routes clearly marked, unobstructed and adequately lit?

12.4.10 Are tests undertaken of the potable water system and is regular maintenance carried out and recorded for both domestic and supplied potable water?

Check that documented procedures are in place and records are maintained. May include UV treatment and/or super chlorination.

Additional Comments

12.99 Additional Comments

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.

Ice operations

General

13.1.1 Is the vessel classed/certified for Ice operations or have a valid winterisation certificate?

State certifying authority and type of notation.

13.1.2 Are procedures available for operations in ice?

Verify that procedures for operating in ice are available that will typically include the following information:

- *Risk management and risk mitigation measures when preparing for and operating in ice*
- *Principal particulars of the vessel*
- *Operating limitations of the vessel, if applicable, based on the ice classification*
- *Maximum load condition and distribution and stability criteria*
- *Contingency Plans and evacuation procedures*
- *Spill response procedures*
- *Procedures for checking hull integrity*
- *Procedures for passage assisted by an ice breaker or in ice convoy*
- *Procedures for towing operations in ice*
- *Guidance on passage planning*
- *Guidance on operating machinery and systems*
- *Guidance on manning e.g. bridge watchkeeping requirements*
- *Personnel safety while working in snow/ice conditions.*
- *De-icing tools and procedures.*
- *Protection and safe operation of LSA and FFA*
- *Protection and safe operation of critical equipment.*
- *Safe operation of vents and hatches*
- *Handling of ballast and potable water.*

13.1.3 Does the vessel/unit's stability booklet take into consideration the effects of ice accretion?

13.1.4 If applicable, are ICE Class draft marks clearly marked and understood and is there evidence of compliance?

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?

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 protected?

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, protected?

Procedures for checking on sheave icing.

13.2.4 Are all fluid systems (e.g. firemain, fresh water lines) that are prone to freezing capable of being fully drained?

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 supplies of salt/sand on board to spread on walkways/gangways?

Needed to protect crew from slips and falls on icy deck.

HSE and safety equipment

13.3.1 Are adequate supplies of protective clothing and thermal insulating materials provided for all persons on board?

Adequate thermal protection shall be provided for all persons on board, taking into account the intended voyage, the anticipated weather conditions (cold and wind) And the potential for immersion in Polar water. This should include appropriate gloves/mittens, cold weather coveralls, head protection to reduce loss of body heat, safety glassed that are tinted for protection from sun & ice reflection, foot protection which is slip-resistant and insulated.

13.3.2 Are appropriate immersion suits provided for all personnel on board?

Immersion suits should be insulated for Arctic use.

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?

Are hatches and doors designed to be operated by personnel wearing heavy winter clothing including thick mittens?

Ships shall have means to ensure safe evacuation of persons, including safe deployment of survival equipment directly onto the ice. When this is achieved by means of adding devices requiring a source of power this source shall be able to operate independently of the ship's main source of power.

13.3.4 Are all escape routes built to dimensions to allow for persons wearing suitable protective clothing to pass unhindered?

13.3.5 Is the temperature rating of the liferafts consistent with the minimum temperature the vessel/unit is capable of operating in?

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?

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?

Lifesaving appliances and associated equipment shall take account of the potential of operation in long periods of darkness, taking into account the intended voyage.

For ships intended to operate in extended periods of darkness searchlights suitable for continuous use to facilitate identification of ice shall be provided for each lifeboat.

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?

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. Portable and semi-portable extinguishers and firefighter's outfits shall be located in positions protected from freezing temperatures as far as practical. Locations subject to freezing are to be provided with extinguishers capable of operating under the Polar Service temperature.

Unprotected water and foam extinguishers are rated for safe operations to +1C. If protected with ethylene glycol they are rated 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, protected from freezing spray and icing?

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?

Crew experience

13.4.1 Do documented procedures require the crew to receive familiarisation training prior to operations in severe sub-zero temperatures?

13.4.2 Are ice operating and training manuals available on-board including documented procedures in place detailing operations with ice breakers?

13.4.3 Does the vessel have a minimum of at least one Ice Navigator?

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.

Bridge equipment

13.5.1 Does the vessel have sufficient heated wheelhouse windows?

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?

13.5.3 Are bridge wings enclosed or protected to facilitate watchkeeping and conning?

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?

Searchlights need to be powerful enough to observe ice around the vessel/unit.

13.5.5 Does the vessel have an operational ice radar?

Ice radar is a 3 cm radar with software that processes the image so that ice is displayed with higher definition.

13.5.6 Does the vessel have equipment for receiving ice data?

Vessel should have INMARSAT equipment capable to receive ice charts. Check that vessel is capable of receiving NAVAREAS/METAREAS 17-21 via INMARSAT

Hull, machinery and engine room

13.6.1 Are there alternative sea chests designed for use under differing drafts or operations in ice?

Ensure vessel sea chest configuration will allow for adequate cooling water when operating in ice, particularly preventing blockage of cooling water by brash or slush ice

13.6.2 Are all sea chests provided with steam heating and/or back flushing to deal with blockages/ice slurry?

Sea chests should incorporate a back flush arrangement (inclusive of re-circ of hot water) or similar to deal with blockages/ice slurry.

13.6.3 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?

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?

Emergency batteries should be protected from extreme low temperatures and they 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?

This may include heating coils in ballast tanks, bubblers, or location away from exposure to extreme cold.

13.6.6 Can vessel ensure bunkers are kept at a suitable temperature at all times?

This may include the ability to heat bunkers or configuration of bunker tanks such that they are not exposed to extreme cold.

13.6.7 Do engineering documented procedures clearly define the diesel oil specification for use in sub zero environment?

13.6.8 Are main machinery air intakes protected from clogging by snow/ice?

Machinery installations and associated equipment shall be protected against the effect of ice accretion and/or snow accumulation, ice ingestion from sea water, freezing and increased viscosity of liquids, seawater intake temperature and snow ingestion.

13.6.9 Are means provided to ensure that combustion air for internal combustion engines driving essential machinery is maintained at a temperature in compliance with the criteria provided by the engine manufacturer?

Polar Code

13.7.1 Does the vessel have a valid Polar Ship Certificate

State certifying authority and date of certificate.

- *Record Polar Service temperature.*
- *Record Operational Limitations.*
- *Record Maximum Expected Time of Rescue Operational Limitations.*
- *Record Ice Condition limitations.*
- *Record Temperature limitations Record High Latitudes limitations.*

13.7.2 Is a Polar Water Operational Manual available? if so, state who has approved it on behalf of the Flag State.

Confirm that the PWOM contains information on the following:

- *Procedures to be followed in normal operations in order to avoid encountering conditions that exceed the ship's capabilities.*
- *Specific procedures to be followed in the event of an incident in Polar Waters.*
- *Procedures to be followed in the event that conditions are encountered which exceed the ship's specific capabilities and limitations.*
- *Procedures to be followed when using icebreaker assistance.*
- *Details of the methodology used to determine capabilities and limitations in ice (i.e. POLARIS or similar system).*
- *Risk based procedures for:*
 - *Voyage planning to avoid ice and or temperatures that exceed the ship's design capabilities or limitations.*
 - *Forecasting arrangements.*
- *Limitations of hydrographic, meteorological and navigational information available.*
- *Maintaining equipment systems and functionality under low temperatures, topside icing and the presence of sea ice.*
- *Contacting emergency response providers.*
- *Maintaining life support and ship integrity in the event of prolonged entrapment by ice (applicable for ice strengthened vessels).*
- *Maximum load condition and distribution and stability criteria.*

13.7.3 Check that Stability book addresses the following

The following ice allowances should be taken into account in the stability calculations:

- *30kg/m² on exposed weather decks and gangways*
- *7.5kg/m² for the projected lateral area of each side of the ship above the waterplane*
- *The projected lateral area of discontinuous surfaces of rail, sundry booms, spars and rigging shall be computed by increasing the total projected area of continuous surfaces by 5% and the static moments of this area by 10%.*

- *Ships of Cat A and B constructed on or after 1/1/17 shall be able to withstand flooding resulting from hull penetration due to ice impact. The residual stability following ice damage shall be such that the factor S_i is equal to one.*

Damage assumed when demonstrating compliance shall be such that:

- *longitudinal extent is 4.5% of upper ice waterline length if centred forward of the maximum breadth on the upper ice waterline, and*
- *1.5% of upper ice waterline length otherwise*
- *Transverse penetration damage is 760mm*
- *Vertical extent is the lesser of 20% of the upper ice waterline draft or the longitudinal extent, and shall be assumed at any vertical position between the keel and 120% of the upper ice waterline draft.*

13.7.4 Are resources provided to support survival following abandoning of the ship, whether to ice or land, for the maximum expected time of rescue in the form of Personal Survival Kits (PSK) and Group Survival Kits (GSK)

Resources to provide:

- *Habitable environment*
- *Protection from cold, wind and sun*
- *Space to accommodate persons equipped with thermal protection*
- *Means to provide sustenance*
- *Safe access and exit points*
- *Means to communicate with rescue assets*

GSKs shall be designed to be easily movable over ice and be floatable.

13.7.5 Do the vessel navigation officers have training in operating in Polar Waters?

Masters, Chief mates and officers in charge of a navigational watch to be trained as follows:

- *Open waters - Basic training*
- *Other waters - Advanced training for Master and Chief Mate, basic training for officers in charge of a navigational watch.*

All crew members to be familiar with the PWOM procedures and equipment relevant to their assigned duties.

13.7.6 Is adequate means of navigation provided for high latitudes?

Ships to have two non-magnetic means to determine and display their heading. Ships proceeding to latitudes over 80 degrees shall be fitted with at least one GNSS compass connected to main and emergency sources of power. Ships involved with icebreaker escort to have a manually activated red flashing light visible from astern to indicate when the ship is stopped.

Ships constructed after 1/1/17 and ice strengthened shall have either two independent echo sounding devices or one echo sounding device with two independent transducers. Ships with the exception of those solely operating in areas with 24 hrs daylight, shall be equipped with two remotely rotatable narrow beam searchlights controllable from the bridge to provide lighting over an arc of 360 Deg, or other means to visually detect ice.

13.7.7 Are adequate means of communication provided?

Means for two way on-scene and SAR coordination including aeronautical frequencies shall be provided along with appropriate communication equipment to enable tele-medical assistance in Polar areas.

All rescue boats and lifeboats shall maintain capability for distress alerting, locating and on-scene communication. This equipment should be capable of operation during the maximum expected time of rescue.

13.7.8 Does the vessel comply with Polar Code restrictions on the discharges of garbage and sewage in Polar waters.

Discharge of food wastes only allowed when ship is as far as practicable away from areas of ice concentration exceeding 1/10th but in any case not less than 12Nm from the nearest land, nearest ice shelf or nearest fast ice.

Food waste shall not be discharged onto ice, all food wastes to be comminuted to no greater than 25mm.

Discharges of sewage are prohibited in Polar waters except:

- *If vessel is discharging comminuted and disinfected sewage at more than 3Nm from any ice shelf or fast ice and as far as practicable away from areas of ice concentration exceeding 1/10th.*
- *If discharging sewage that is not comminuted or disinfected and is more than 12 NM from any ice shelf or fast ice and as far as practicable from areas of ice concentration exceeding 1/10th.*
- *If the ship has an approved sewage treatment plant and discharges sewage as far as practicable from the nearest land, any ice shelf, fast ice or areas of ice concentration exceeding 1/10th.*

Additional Comments

13.99 Additional Comments

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.

Helicopter operations

General

14.1.1 Is there documentary evidence to confirm that the helideck meets the requirements of CAP437?

Helideck is usually Approved/Certificated by CAA; FAA; or equivalent. Specify applicable jurisdiction/region for certification in Comments.

Add regions/jurisdictions previously worked as a Comment.

Helidecks may be issued a letter from its classification society attesting to construction in conformance to CAP437. In such cases has an audit been conducted to confirm continued conformance to CAP437?

Are the results of that audit available for review and have the findings been actioned.

14.1.2 If the vessel/unit has re-fuelling facilities, are they certified?

Inspector to identify the body/company issuing the certification and date of issue of certification. Records of inspection and certification should be checked to determine if recommendations made at the time of survey have been completed.

14.1.3 Are appropriate publications for helicopter operations available on board?

These may include, for example:

- CAP 437; (Inspector to comment if not on-board)
- 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

Operational procedures

14.2.1 Do on-board marine operations procedures address helicopter operations?

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?

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 documented procedures in place for checking helideck, net tension, and inspecting helideck for debris prior to aircraft arriving?

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 documented procedures in place for controlling passenger access/egress at helideck?

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).

Crew training

14.3.1 Are formally qualified Helicopter Landing Officers (HLOs) available on board as required?

Formal training/certification should be available on board.

14.3.2 Are formally qualified Helideck Assistants (HDAs) available on board as required?

Formal training/certification should be available on board.

14.3.3 Are all Heli-ops radio users trained and appropriately certificated?

All personnel involved in transmitting or receiving radio messages from helicopters shall carry appropriate radio licence as issued by Local NCAA for area of operation e.g. UK Restricted Radio operators certificate of competency (ROCC)

14.3.4 Is the helideck monitoring system fully operational?

Weather observing, report assessment, movement monitoring should be conducted by trained and experienced personnel, in most cases the navigating officers on the vessel/unit. Where used, state details of Helideck Monitoring System (HMS). Inspector should note approving civil aviation authority for HMS system

Emergency response

14.4.1 Is the vessel/unit equipped with dedicated airband transceivers?

Must allow both operating frequency spacing required use for normal communicating with the aircraft and watch/emergency frequencies for flight watch and following. E.g. 8.33 KHz spacing.

14.4.2 Does the vessel/unit have dedicated flight following/watch personnel & procedures?

Qualified radio operating personnel should be available. Formal flight watch/following instructions and records should be confirmed in place and correctly logged. Where this performed by an onshore organisation the inspector is requested to identify who performs this role.

14.4.3 Is the helideck firefighting and emergency equipment in good order and available for immediate use?

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).

Passenger/cargo management

14.5.1 Is there a formal documented procedure for briefing passengers?

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 During muster trials, are there records to indicate that the vessel ensures that access/egress to the Helideck/muster station/reception area 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?

Check calibration records for consistency.

Sample freight/baggage manifests for completeness, calibration should be undertaken by on shore 3rd party independent vendor at intervals not exceeding manufacturer's recommended practice

14.5.4 Is there evidence that the vessels Control of passengers ensures offsigners are all loaded out and on-signers need to be checked in and briefed?

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?

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.

14.5.6 Are all helideck lights functioning?**14.5.7 Are wind sock(s) provided?**

Wind sock(s) shall be illuminated and installed in sufficient number or location so that the air flow through at least one wind sock is not obstructed by MO(D)U structure.

Additional Comments**14.99 Additional Comments**

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.

DP operations

General

15.1.1 Does the vessel have on board a copy of the most recent DP FMEA (DP FMEA Desktop analysis)?

Record the date of the report and the name of the issuing company.

15.1.2 Is the latest DP FMEA revision less than 5 years old and/or has there been a third party gap analysis been completed within the last 5 years stating the DP FMEA is still valid?

Both IMO and IMCA guidance state that formal review of the DP FMEA shall be completed within a 5 year period.

Reference: IMO MSC.1/Circ.1580, IMCA M 166, IMCA Information Note 1605

15.1.3 Have any modifications been sighted/reported to the DP mission critical equipment since the last DP FMEA revision. If applicable, have any modifications been proven by testing?

IMCA M 166, Guidance on Failure Mode Effects Analysis Guidance, Chapter 2.7 Updating of an FMEA states: "The FMEA will become out of date if it is not maintained regularly and systematically, due to changes in operating procedures, modifications to DP hardware and software, to confirm compliance with the latest industry guidance, etc., over the life cycle of the vessel. If this happens, it is likely that another FMEA revision will be incurred later. A systematic FMEA review through the vessel's life cycle should be an ongoing process which should be formally completed at least once every five years."

15.1.4 Is a copy of the latest DP FMEA Proving Trials (5-yearly DP FMEA verification trials) available on board and is it less than 5 years old?

15.1.5 Are the latest revisions of the FMEA Report and DP FMEA Proving Trials approved by class?

15.1.6 Have the findings (if any) from the latest DP FMEA Proving Trials been addressed?

Record the date and issuing company of the DP FMEA proving trials.

15.1.7 Does the vessel have on board a copy of the most recent DP Annual Trials report?

Record the date of the report, issuing company and specify if the DP annual trials were performed remotely, semi-remotely or as an on-board trial. The DP annual trials should be conducted as per IMCA M190.

15.1.8 Have the latest DP Trials been completed within the window?

If there has been no DP Annual trials and or proving trials within the last 15 months, leave an observation.

If there has not been DP trials in the last 12 months please comment.

The Annual DP trials and or DP Proving trials should be carried out within three (3) months before or after each anniversary date of the Dynamic Positioning Verification Acceptance Document (previously Flag State Verification Acceptance Document) Reference: IMCA M190, IMCA M103.

15.1.9 Have recommendations from the annual DP trial report been addressed and closed out as required?

If there are any outstanding A/B findings, record it as an observation and provide detail.

15.1.10 Have all personnel involved in DP operations read and understood the DP FMEA?

Confirm that the DPO's have signed an acknowledgement form.

15.1.11 Is there a valid software maintenance agreement(s) in place?

The following systems to be covered:

- DP control system.
- Power system.
- Thruster system.

The software maintenance agreement should cover safety and security patches, obsolescence management, incident reporting and response handling, software change handling and software asset inventory. for example. A statement of product status and maintainability may be accepted as an alternative. Reference: DNV-RP-0582 and IMCA M 103

15.1.12 Do the vessel procedures require a minimum of two DP operators to be on duty during DP operations?

Check that there is sufficient qualified DPOs to provide rest/meal relief (if applicable).

15.1.13 Is the bridge access restricted to only essential personnel during DP operations?

Check that bridge restrictions are implemented - i.e. by sign, procedures or standing orders

Operations

15.2.1 In the last 12 months has the vessel operated without experiencing any loss of position incidents?

If the vessel has recorded any Yellow or Red condition DP alarms Inspector to Note and record all such incidents

15.2.2 Is the vessel without any defects which result in a reduction of DP Capability and/or redundancy?

Record any DP mission critical equipment which is not operating as expected.

15.2.3 Does the vessel use the IMCA Incident reporting system?

Both Members and non-Members of IMCA are asked to submit reports on the following:

- DP Incident
- DP Undesired Event
- DP Observation

The submission process involves completing a form and providing detailed information regarding the incident and leading factors ideally with supplementary items such as sketches and actions taken. If recent reports are not available check that the vessel's management system requires IMCA DP incident reporting.

15.2.4 Does the vessel carry out risk assessments for specific operations (as listed in guidance)?

- SIMOPS
- External loads such as tuggers
- Weather related contingencies, etc.
- Weather side working
- Environmental / Shallow water operation
- Heavy lift operation

15.2.5 Are Manual thruster control levers and emergency stops located within easy reach of the DPO and are each emergency stop well protected against inadvertent operation?

For vessels build after June 2017, IMO MSC.1 Circ. 1580, Section 3.3.6 states that "individual thruster emergency stop systems should be arranged in the DP control station".

Regardless of above guidance, inspector should write an observation if each thruster does not have an individual emergency stop and/or emergency stops / control levers are not within easy reach of DPO.

15.2.6 Can the health of the position reference systems be monitored by the DPO, independently of the DP control station?

Inspector to comment if DPO needs to leave the immediate vicinity of the DP desk to view health information.

15.2.7 Does the vessel have a vessel specific DP Operation manual on board and is there evidence that relevant DP personnel has read the document?

Reference: IMCA M109, IMO Resolution 645 (Operational Requirement) and IMO MSC.1/Circ. 1580

15.2.8 Does the DP operations procedure include specific guidance for any DP specific operations that the vessel will conduct, e.g. Anchor Handling, Towing, Heavy Lift, Diving, Pipelay, etc?

Procedure should address when and where DP is used and the checks required prior to use. Reference: OCIMF Dynamic Positioning Assurance Framework Information paper.

15.2.9 Is there a competence scheme for key DP personnel onboard?

This could be a in-house training scheme.

15.2.10 Are DP checklists in place to cover bridge, engine room and electrical systems for DP operations?

Checklists can include DP setup (Bridge and engine) / 500 m safety zone entry (Bridge and engine) / Field arrival / DPO and engine room periodical handovers.

15.2.11 Are DP Capability Plots in place to cover the normal and expected operations, and worst case failure?

Guidance is provided in IMCA M 140 "Specification for DP Capability Plots" and Marine Technology Society DP Operations Guidance.

15.2.12 Are DP footprints regularly recorded and compared against previous footprints and the DP Capability Plots?

Check that the operator has guidance for recording DP footprints and specifies frequency of recording. Reference: IMCA M 140 - Specification for DP Capability Plots and MTS Operations Guidance DP Footprint Plots.

15.2.13 Depending on vessel activity and if required, are Activity Specific Operating Guidelines (ASOG) or Well Specific Operations Guidelines (WSOG) or Field Specific Operations Guidelines (FSOG) in place and utilised?

- *Are all relevant parties aware of the specific operating guidelines (ASOG, CAMO, TAM etc)?*
- *Are there defined limits set for Green, yellow and red DP operations? Confirm these are read and understood by relevant parties within the operations team including ,if applicable, dive control, drill foreman etc.*
- *Are DP cessation triggers clearly defined within specific operating guidelines? Cessation of operations may be required for a whole host of reasons for example degraded equipment availability, weather limits, reduction in available redundancy, etc*
- *Check that consequence analysis alarms is used as an input to the specific operating guidelines. Inspector to record an observation if specific operating guidelines are not readably available at DP control station.*

15.2.14 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?

If 'No', state whether CCTV is utilised. Reference: IMCA M 103

15.2.15 Is the DP alert triggering system in immediate reach of the DPO at console?

The DP Alert System is used during critical operations such as diving, drilling, pipelaying, walk-to-work or other critical operations and includes traffic lights.

Equipment

15.3.1 Is the Dynamic Positioning control systems in good order?

Note any recommendations/deficiencies reported

15.3.2 Are all position reference systems in good order and are both relative and absolute position references available on the vessel for the applicable operations vessel likely to conduct?

IMCA M 252, Guidance on position reference systems and sensors for DP operations, summarises best practice for the selection and use of position reference systems (PRS) and sensors in dynamic positioning (DP) control systems.

15.3.3 If a DP data recorder is not fitted, confirm that procedures are in place for securing relevant data in the event of a DP incident?

Reference: IMCA M 103

15.3.4 Is there a procedure and evidence of the regular checking of the secure power supply systems (UPS Battery systems)?

Planned maintenance routines should exist for the UPS/s Reference IMCA M 190

15.3.5 Does the DP system have a continuous analysis function checking that in terms of thruster and power can maintain position after the worst case failure (consequence analysis function)?

IMCA M 103

15.3.6 Is the DP control system fitted with additional drift off calculation function or on screen real time DP capability envelopes?

Inspector to record in comments if active monitoring or drift off test is used.

15.3.7 Is the actual bus bar configuration in accordance with the FMEA and the last DP trials performed?

Inspector should state whether the bus ties are open or closed configuration for each mode of DP operation (i.e. Mode 1, 2 etc)

15.3.8 Is the DP control system included within the Planned Maintenance System?

Including all position reference systems, UPSs and sensors.

15.3.9 If unit is a DP flotel fitted with a connected gangway, confirm that the gangway is used as Positioning Reference System (PRS)?

Record an observation if gangway is not used as a PRS.

15.3.10 If the unit is a DP flotel operating on a turret moored FPSO or any moving asset with connected gangway, confirm that DP system is fitted with "follow target "mode option?

Record an observation if "follow target mode" is not available.

Competence

15.4.1 Are the vessels crew suitably qualified for DP Operations?

All key DP personnel (including Engineer and/or Electro-technical personnel) onboard should comply with the IMCA minimum requirements for experience and training. Confirm DP certification been issued by a recognised body, such as the Nautical Institute. Experience should be recorded in DP log books. Reference: IMCA M 117

15.4.2 Is there an Engineer and or Electronic Technician on-board with approved training on the DP system?

Confirm that Engineers and ETOs have appropriate training/guidance on how to operate/maintain plant when in DP mode. Ref IMCA M117 section 6. Sight certificates / records of DP system training from system manufacturer.

15.4.3 Are DP drills included in the vessel drill matrix and performed regularly?

Inspector to check drill record and record date of last DP drill.

Additional Comments

15.99 Additional Comments

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.

Jack Up Operations

Leg and Jacking System Integrity

16.1.1 Do vessel procedures recognise leg strength / integrity and integrity as Safety Critical Elements / Safety Critical Equipment?

Review the procedures, determine if the legs, spud cans and jacking system are identified as Safety Critical Elements and how this is translated into the vessel/unit Maintenance System through Planned maintenance and Periodical inspections of legs, spud cans and jacking equipment by vessel, 3rd parties, Original Equipment Manufacturers and Class.

16.1.2 Does the vessel maintenance system address the self elevating system in its entirety?

Review the vessel maintenance procedures for the legs, jacking systems preloading pumps, dump valves and jetting systems.

Does the vessel have inspection procedures for the individual jacking units. Review these procedures.

16.1.3 Is there evidence of routine inspection of legs by vessel staff, 3rd party Agencies and Class and has the report been endorsed by class?

Check previous leg inspection reports. There are 2 type of reports for leg inspection, annual and 5 yearly. 3rd party inspected legs and review and endorsed by Classification. When rig at offshore location, inspection company used ROV.

16.1.4 Is there evidence of routine inspection of Jacking Houses by vessel staff, 3rd party Agencies and Class

Check structural survey report for reference to jacking houses. Jacking houses required to be inspected annually and 5 yearly. 3rd party inspected and endorsed by Classification.

Note date of last inspection.

Inspect jacking houses for damage.

16.1.5 Is there evidence of routine structural integrity inspection of spud cans by vessel staff, 3rd party agencies and Class

Check structural survey report for spud cans. When was this carried out.

Review reports for evidence of damage and repairs carried out to satisfaction of Class.

16.1.6 Are the legs free of evidence of damage/wear/repairs?

Visually inspect available area of leg cords for wear, corrosion and marine growth. Are anodes in place and in satisfactory condition.

16.1.7 Are jacking motor insulation resistance readings recorded?

Review records of jacking system electric motor insulation testing.

16.1.8 Are jacking motor gearboxes subject to regular inspection and maintenance

Are jacking gearboxes clearly numbered for maintenance purposes and oil analysis.

Review records of inspection and taking of oil samples. Oils sample records should be subject to analysis for water and metal content

16.1.9 If fitted, are rack chock systems free of defects?

Inspector can note condition testing,

16.1.10 Is there a gearbox planned maintenance plan including internal condition inspection?

Review records to determine if any gearboxes have been changed or repaired. Does the company use facilities such as borescope inspections for the gear boxes.

16.1.11 Is lubrication of jacking systems and inspection part of periodical Routine Maintenance

Inspector to verify if lubrication is carried out periodically between vessel moves when the unit is working on drilling location. Confirm if this is being performed at intervals other than during the vessel move itself.

16.1.12 Are jacking system spare parts considered critical spares, identified as such and stock levels being maintained on-board

Review spare parts list with PMS/Warehouseman and determine if min stock levels are in place for Jacking system parts on-board/onshore

16.1.13 Is there evidence that Rack Phase Values (RPV) measurements are made as part of jacking operations?

Gauging the vertical offset between corresponding rack teeth on adjacent chords conveniently provides a means for taking suitable measurements. The vertical distance from a reference datum on the hull to the specified rack tooth position is termed Rack Phase Value (RPV).

16.1.14 Is the Rack Phase Difference (RPD) value monitored as part of jacking operations? Is the maximum allowed RPD clearly documented and complied with?

A limiting RPD value should be calculated being the maximum acceptable value for use during normal jacking operations. Exceeding this limiting value, whilst not necessarily representing a dangerous condition initially, should prompt the jack-up crew to contact the operator onshore support team for expert advice with respect to continuing jacking operations.

Inspector should seek evidence of same in jacking operations records.

16.1.15 Is Jacking Control panel in good order?

Inspector to check lamp tests.

Inspector to request Barge Captain/Marine Section Lead to turn on the power to control panel and compare console gauges against visual marking.

16.1.16 Is there a system in place for indicating and monitoring leg penetration?

Methodologies of penetration depth include digital leg depth or checking leg markings. Inspector should make comment on system deployed

16.1.17 Does the operations manual clearly define environmental conditions limitations for jacking operations?

Inspectors should review to ensure environmental conditions are clearly defined for significant phases of marine operations including but not limited to:

- *Initial jacking*
- *Preload activities*
- *Emergency jacking*
- *Transitional activity displacement to non-displacement*
- *Open location*
- *Proximate to installation condition*

16.1.18 Is the direction of rotation clearly marked on the Jacking motors?

Preloading Pumps and Systems

16.2.1 Is the vessel equipped with dedicated pumps for ballasting/ preloading?

Check the systems description in the MoM or similar for the description of the system and validate that the pumps described are the pumps being utilised for the operations.

16.2.2 Is the capacity of the preload pumps documented?

Inspector to state capacity of pumps and time taken for pumps to ballast vessel to full preload. Validate these figures with procedures and the times stated in technical data

16.2.3 Are the preload pumps and dump valves identified as Safety Critical Elements/Equipment?

Review maintenance records of preload pumps and dump valves. Verify condition where possible by physical inspection and witness operation of equipment if operations permit.

16.2.4 Are there procedures detailing the maintenance of the Preload dump valves

Verify operation/testing schedule, and establish time needed to discharge preload.

16.2.5 Has there been any modifications to the rig that have affected the variable deck load?

Inspector to detail any MOC and Class approval records were in place if weight is more than 5% of previous deck weight. Check current stability calculation is valid for deck load.

Jetting Systems Pumps and Piping**16.3.1 Is there a procedure for jetting operations which defines maximum allowable over pull and inclination during leg extraction.**

Inspector to review Marine Operations Manual move procedures.

16.3.2 Are Jetting systems documented and plans available?

Inspector to review Marine Operations Manual or the MO(D)U rig move procedures/jacking procedures.

16.3.3 Is there evidence of recent use of the jetting system?

View previous vessel move records to validate if the jetting system was used. Inspector to make comment if jetting system is not operational.

16.3.4 Are there procedures in place for the safe handling and connection of jetting hoses?**16.3.5 Is the jetting system capable of being fed from other sources e.g. mud pumps, fire pumps etc.?**

Record alternative means of running jetting system and confirm if this is documented in Marine Operations Manual or Procedures.

16.3.6 Is the maximum working pressure of the Jetting system known and documented and is the system fitted with a pressure relief valve?

Record the pressure values.

Additional Comments**16.99 Additional Comments**

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