



Ship Inspection Report (SIRE) Programme

**North America Barge Inspection Questionnaire for
Oil Tankers, Combination Carriers, Shuttle
Tankers, Chemical Tankers and Gas Tankers
(BIQ 5 – North America)**

24 Feb 2020

Oil Companies International Marine Forum

Record of Revisions

| Rev No. | Date | BIQ No. | Revision |
|---------|-------------|--------------|---|
| 5.3.00 | 13-May-2019 | Q2.44 | Variant Update: Turn ON all for all variants in view of Sub-M changes except Inland barges. |
| 5.3.00 | 13-May-2019 | 2.49 | BIQ5 v2 Q 5.3 moved to Q 2.49 with new wording: Is the Quality Manual (Safety Management Manual) available on board and are personnel familiar with its contents and are these being followed? Turn ON for all variants. |
| 5.3.00 | 13-May-2019 | 4.11 | Question re-worded: If fitted, is pilothouse alerter operational? |
| 5.3.00 | 13-May-2019 | 4.27 | Variant Update: Turn OFF for inland tug and inland barges. |
| 5.3.00 | 13-May-2019 | 4.33 | Question re-worded: If fitted, is an Electronic Chart System operational, are there adequate policies and procedures in place and are wheelhouse personnel familiar with it? |
| 5.3.00 | 13-May-2019 | 4.43 | Guidance Update |
| 5.3.00 | 13-May-2019 | 5.3 | New Question and Guidance |
| 5.3.00 | 13-May-2019 | 5.12 | Guidance Update |
| 5.3.00 | 13-May-2019 | 5.13 | Guidance Update |
| 5.3.00 | 13-May-2019 | 5.18 | BIQ5 v2 Q 11.24 moved to Q 5.18 |
| 5.3.00 | 13-May-2019 | 5.18 | Guidance Update |
| 5.3.00 | 13-May-2019 | 5.20 | Guidance Update |
| 5.3.00 | 13-May-2019 | 5.22 | Variant Update: Turn OFF for inland tug |
| 5.3.00 | 13-May-2019 | 5.23.2 | New Question and Guidance |
| 5.3.00 | 13-May-2019 | 5.23.3 | Guidance Update |
| 5.3.00 | 13-May-2019 | 5.29 | Variant Update: Turn OFF for inland tug |
| 5.3.00 | 13-May-2019 | 6.10 | Guidance Update |
| 5.3.00 | 13-May-2019 | 8.27 | BIQ5 v2 Q8.30 is merged with Q8.27 with new wordings: Are cargo pipelines in satisfactory condition and tested annually? |
| 5.3.00 | 13-May-2019 | 8.30 | New question: If the barge is involved in Tandem cargo operations, are adequate procedures available? |
| 5.3.00 | 13-May-2019 | 8.73.2 | Guidance Removed |
| 5.3.00 | 13-May-2019 | 8.93 | Question Removed: |
| 5.3.00 | 13-May-2019 | 8.110 | Question Removed: |
| 5.3.00 | 13-May-2019 | 10.29 | Variant Update: Turn OFF for inland barges, Turn ON for inland Tugs |
| 5.3.00 | 13-May-2019 | 11.13 | New Question: Is vessel fitted with a bilge pump or other dewatering capability and are bilge alarms operational? |
| 5.3.00 | 13-May-2019 | 11.32 | New Question: Are Nonconductive mats or grating provided on the deck in front of each switchboard? Turn ON across all variants. |
| 5.3.00 | 13-May-2019 | 11.46 | New Question: Are engine room emergency stops for ventilation fans clearly marked and do records indicate that they have been regularly tested? |
| 5.3.00 | 13-May-2019 | 12.1 | Guidance Update |
| 5.3.01 | 24-Feb-2020 | Sections 1-5 | Guidance notes updated. |

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SECTION 1

1.1 Introduction and Background

The Ship Inspection Report (SIRE) Programme was established by OCIMF in 1993 and this enabled members to submit and share ship inspection reports with other members as well as with certain qualifying entities that were not OCIMF members.

Participation in this programme, either as a submitting OCIMF member or as a programme recipient, is voluntary. Each participant that receives reports from the programme determines how to evaluate the information contained in the reports completely independently.

Under the SIRE programme, the operator of any ship that is the subject of an inspection is given the opportunity to submit written comments in response to the observations made in the report. These inspection reports are included in the SIRE database which is accessible by recipients of reports allowing them to view or download reports.

1.2 Revisions to SIRE Programme

The SIRE programme has undergone a series of revisions since its introduction in 1993. It was first revised in 1997 when the means for programme recipients to access reports as well as operator comments was introduced.

Two major changes were introduced in the 1997 revision to the programme. These were the introduction of:

1. The uniform vessel inspection procedure; and,
2. The Vessel Particular Questionnaire (VPQ).

Under the original 1993 programme, the inspecting OCIMF member was free to choose whatever inspection protocol and report format it desired. In 1997, the uniform vessel inspection procedure changed this. The vessel inspection questionnaire was a newly developed OCIMF document introduced in 1997.

The VIQ has since been revised regularly with updated questionnaires being published in 2004, 2005, 2008, 2009, 2012, 2014 and 2018. The Vessel Particulars questionnaire (VPQ) was introduced in 2003.

The 2004 revisions made further important changes to the inspection procedure while adding numerous new vessel types that are inspected under the programme. Collectively, these are referred to as vessels.

Barges

The SIRE programme was expanded in 2005 to include the inspection of barges carrying petroleum products, chemicals or gas, or vessels used in the carriage of packaged petroleum products or gas, or road tankers carrying the same commodities. Towing vessels that are used in the handling of barges carrying the above listed products may also be inspected under the SIRE programme.

Inspections of these vessels are conducted using questionnaires which are specific to the vessel types and the geographic regions in which they operate.

There are currently four different regional questionnaires used for barges – North America (NA); South and Central America (S&CA); Europe (EUR); and the Rest of World (RoW) or International questionnaire.

1.3 The uniform vessel inspection procedure

This principle underpins the SIRE programme and requires that participating submitting companies as well as inspectors 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 appropriate for the type of vessel inspected. These questionnaires address issues associated with safety and pollution prevention. Inspectors, employed or contracted by submitting companies, must answer all these questions.

Questions are, in most cases, accompanied by guidance notes and/or references to source regulatory or industry best practice documents. Their purpose is to aid the inspector's response to the question.

The report element is developed from the completed electronic questionnaire that is submitted by the inspector, either directly to the SIRE website or to the submitting company for further processing prior to transmission to the vessel operator and to SIRE.

SECTION 2

2.1 The Vessel Inspection Questionnaire (VIQ)

The revisions to the SIRE VIQ and their accompanying inspection reports have introduced changes to the scope and presentation of the programme and ensured that the programme maintains continuous improvement.

These changes include:

1. The inspection of combination carriers and shuttle tankers, chemical carriers and gas carriers.
2. The categorisation of all vessels by size.
3. The inspection of barges carrying petroleum products, chemicals or gas, or vessels used in the carriage of packaged petroleum products or gas or road tankers carrying the same commodities as well as towing vessels that are used in the handling of barges carrying such products. Collectively, the inspection questionnaires that are used are referred to as Vessel Inspection Questionnaires (VIQs).
4. The question sets which are specifically for use with "barges" are referred to as Barge Inspection Questionnaires (BIQ)
5. The "question and sub-question" concept used in the first and second editions of the VIQ was discontinued in the third and subsequent editions and was replaced (except in a few cases) with specific individual questions. However, as with previous editions, the 'Yes', 'No', 'Not seen' or 'Not applicable' responses continue to be used.

2.2 Reorganised Vessel Inspection Questionnaire (ROVIQ) and VIQ editor programme

A ROVIQ was a feature introduced with the SIRE revisions made in 2000. The ROVIQ organises the VIQ questions and guidance notes to follow the order of the route that would normally be taken by an inspector in the course of an inspection.

The ROVIQ is laid out on the assumption that an inspection takes the following course: a review of the vessel's documentation, followed by an inspection of the wheelhouse and navigation, communications, general external areas (including mooring, main deck and pump room), cargo control room, engine and steering compartments and the accommodation

Currently, only the questionnaire that is used for the deep sea fleet has the ROVIQ facility. The selection of a questionnaire to be used for an inspection is made using a vessel selection wizard incorporated into the SIRE report editor software programme. This wizard requires a series of questions to be answered in order to select the appropriate question set. When the question set has been compiled, the questionnaire can be printed in a number of different formats.

It is expected that these questionnaires, in their original form or as a ROVIQ, must be used during each inspection.

The inspector's findings must be transferred from their pocketbook to the appropriate VIQ editor programme after the inspection is completed.

SECTION 3

3.1 Using the SIRE Barge Inspection Questionnaire (BIQ)

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

Each chapter contains a series of questions which must be answered by the inspector. Questions may be accompanied by guidance notes which will contain information such as:

1. Guidance for inspectors.
2. Reference source(s) citing regulation(s) and/or industry best practice pertaining to questions.
3. An indicator to identify when an inspector comment is mandatory.

The guidance and regulatory/industry references focus the questions and are provided to assist the inspector to answer the questions. Some questions do not have guidance and in such cases, the inspector is required to apply their knowledge and judgement in answering the question.

If the inspector concludes that the question should be answered positively, the box 'Yes' in the VIQ editor programme should be checked. If the inspector concludes that the question should be answered negatively, the 'No' box should be checked.

Where appropriate, the 'Not seen' or 'Not applicable' box should be ticked.

The inspector *must* insert an observation to any question where the response box is marked 'No'. The observation *must be objective and must specify and explain* the reason why a negative response is made. Additionally, where a box is marked 'Not seen', the reason for the 'Not seen' response *must* be given in the observation section accompanying the question.

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 SIRE website for processing by the principal who commissioned the inspection.*

In cases where a 'Not applicable' response is required, 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 inspector comments" section accompanying the question. The inspector must ensure that such comments will assist in understanding why a 'not applicable' response was chosen.

In some cases, where the type of vessel being inspected results in one or more questions being not applicable, the report editor is programmed to automatically answer those questions 'Not applicable'. In many cases, the questions do not have a 'Not applicable' option.

For some questions, the guidance note is in *italicised text* and highlighted in yellow. In the electronic report editor, it is highlighted in yellow. The inspector, in these cases, must provide comment as directed by the highlighted guidance note.

At the end of each chapter there is an “additional comments” section. If the inspector has any comments with regard to any subject matter that is not covered by the specific questions in the chapter, the inspector may make such comments in this section.

The requirements described above are summarised in the following table.

| Box | Option | Response |
|-----|---------------------------|---|
| Y | Yes | <p>Tick ‘Yes’ if, in the inspector’s professional judgement assisted by the guidance notes (if provided), a positive response can be made to the question. If, in the inspector’s judgement the ‘Yes’ response needs to be amplified with further positive comments, the inspector may record such comments in the comments box.</p> <p>Inspectors should keep in mind that unless an unusual situation needs to be positively described, then a ‘Yes’ response without comment is adequate.</p> |
| N | No | <p>Tick ‘No’ if, in the inspector’s professional judgement assisted by the guidance notes (if provided), a negative response should be made to the question.</p> <p>The observation <i>must be objective and must specify and explain</i> the reason why a negative response is made.</p> |
| NS | Not seen | <p>Tick ‘Not seen’ if the issue addressed by a question has not been seen or checked by the inspector. The reason that the topic or issue was not seen must be recorded in the <i>observations</i> box.</p> |
| NA | Not applicable | <p>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. In other cases, a ‘Not applicable’ response option is not provided to the question and only the ‘Yes’, ‘No’ or ‘Not seen’ options are available.</p> <p>If, in the inspector’s judgement, the ‘Not applicable’ response needs to be amplified with further comments, the inspector may record such comments in the “other inspector comments” box. If, in the inspector’s judgment, an explanatory comment is necessary, the inspector may make such comment in the “other inspector comments” section accompanying the question provided such <u>comments will assist in understanding why a ‘not applicable’ response was chosen.</u></p> |
| | Observations and comments | <p>An observation by the inspector is required for a ‘No’ or ‘Not seen’ response.</p> <p>Where the question specifically calls for an inspector’s 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.</p> <p>Inspectors are free to record comments even where a box is checked ‘Yes’ provided such comments assist the understanding of a person reading the report (the report recipient).</p> |
| | Additional comments | <p>The additional comments section at the end of each chapter may be used to record comments relevant to the chapter that are <i>additional</i> to those which the inspector may make when responding to the specific questions in that chapter.</p> |

3.2 BIQ availability

All Inspection Questionnaires may be downloaded from the OCIMF website at <https://www.ocimf.org/sire/resources/questionnaires.aspx> .

SECTION 4

Conduct of inspectors

4.1 Mandatory requirements

The following general and additional requirements are mandatory and *must* be followed by inspectors

4.1.1 General requirements

1. The inspector *must* introduce themselves to the Master (Captain) or the Master's/Captain'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. This meeting between the Inspector and the Master and any other relevant ship's personnel is referred to as the "opening meeting"
2. The inspector *must* be accompanied by a member of the ship's staff at all times during the course of the inspection.
3. Inspectors may, on occasion, have observers with them during an inspection. Where the inspector has an observer accompanying them, the inspector *must* introduce the observer to the Master/Captain at the same time and in the same manner as they introduce themselves. Inspectors *must* clarify the extent and scope of the observer's role during the inspection.
4. The inspector *must* set a good example with respect to their communications, behaviour and own personal safety procedures while on board the vessel and in the terminal and *must* wear appropriate personal protection equipment at all times.
5. 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, 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 smart watches, 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.
6. Any observations that the inspector intends to record *must* be pointed out and discussed on site at the time with the member of the ship's staff accompanying the inspector. This ensures that the nature of the observations are fully understood and can avoid extended discussion at the end of the inspection.
7. On completion of the inspection, some submitting companies allow the inspector to provide a list of the inspection findings in the form of written observations, but others do not. In either case, the inspector *must* discuss the inspection findings with the Master/Captain or the Master's/Captain's authorised deputy before leaving the vessel. This meeting between the Inspector and the Master and any other relevant ship's personnel is referred to as the "closing meeting".
8. Other than to prepare the list of observations and conduct the "closing meeting", the inspector *must* not remain on the vessel once the inspection is complete. It is recognised that on occasions this may not be possible, especially when joining and leaving vessels conducting STS operations.

9. The time taken to complete an inspection will vary depending on the type of the vessel being inspected. This could range from inland or offshore dumb barges through to Articulated Tank Barges (ATBs) when in a single unit with its tug. It is also expected that documentation checks will be carried out as part of the inspection. All other time on board should be used to inspect the vessel, interact with crew members, compile the observation list as appropriate, and conduct the close-out meeting. As specified in section 4.1.1.8, with the exception of compiling a list of observations and conduct the “closing meeting”, the inspector *must* leave the vessel on completion of the inspection.
10. All inspectors **must** take into account their own rest hours. This must allow for all travel and fatigue levels. ‘Back-to-back’ 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 requirements list above, the inspector:

1. **Must**, when completing an inspection report, respond by entering the relevant 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** provide a response to every question.
4. **Must** include objective evidence when answering each question (the assurance of the vessel’s staff is insufficient evidence or proof).
5. **Must**, when a question is answered ‘**No**’ or ‘**Not seen**’, include an explanatory text in the observation section. Where the question is answered ‘**Not applicable**’ or in cases where the guidance requires a comment regardless of how the question is answered, such comment must be recorded in the “other inspector comments” section.
6. **Must not** use a ‘**Yes**’ response to any question where an inspector’s comment contains negative elements (if there is a negative comment or observation to be made, the answer to that question should be ‘**No**’).
7. **Must not**, in any part of the inspection report, include:
 - i. Any overall or partial ship rating or indication of ship acceptability/non-acceptability.
 - ii. Any matter **unrelated** to the topic of a VIQ chapter and, in particular, any matter **unrelated** to ship safety and pollution prevention.
 - iii. Any overall or partial summary of the inspector’s findings.
8. **Must** provide the factual basis and specific reasons for any opinions or subjective comments made by the inspector.
9. **Must** note any deficiencies or inspector-observed conditions, to which action was taken while the inspector was on board.
10. **Must not** offer any comments or opinions with regard to actions to be taken in respect of any deficiencies or observed conditions noted by the inspector.
11. **Must not** use the expression ‘we’ in any observation or other comment unless the inspection was conducted by more than one inspector.
12. **Must not** at any time give any verbal indication of ship acceptability/non-acceptability.
13. **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.
14. **Must not** conduct any other inspection or be involved in the provision of any other services while conducting a SIRE inspection.

4.2 Permitted inspection actions

Inspectors **may**:

1. Add comments to the “other inspector comments” section accompanying any question, even where the question is answered with a ‘**Yes**’, **provided** such comments give useful information to the report recipient.
2. Respond to questions or provide comments on the basis of material **not** referenced in the guidance associated with the question but must provide the reference being used and explain the reason for it.
3. Include in the “additional comments” section at the end of each chapter, comments on subject matter that may not be addressed by the questions in that chapter. These comments are additional to those that the inspector may make in response to the specific questions in the chapter.
4. Respond to questions which are not applicable to either the vessel or its cargo by checking such questions as ‘**Not applicable**’. In such cases inspectors must provide explanatory text in the “other inspector comments” box as necessary.

4.3 Other inspection requirements

1. 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.
2. Inspectors **shall** limit advance communications with vessels and vessel operators to that information necessary to arrange access 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.
3. The inspector may request 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 do not contradict any terminal requirements.
4. It should be recognised that the overall objective of the inspection is to provide the user of a SIRE 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.
5. The inspector must plan their time and make sufficient allowances to have adequate time available for the inspection. Inspectors **must** take into account the requirements for hours of rest of the vessel’s staff and ensure that the inspection does not interfere with these.
6. Under normal circumstances, a SIRE inspection will take place when a vessel is alongside in port while discharging or loading cargo. During the course of the inspection entry into ballast tanks and/or void spaces is discouraged. Assessment of the physical condition of ballast tanks, void spaces, etc, can be made only in circumstances where the access hatches or plates can be removed, and the internals sighted from the deck. In any event, actual entry should only be made following specific written request from the member commissioning the inspection, with the authority of the Master and provided that port and terminal regulations allow it. In all cases, the enclosed space entry procedures set out in ISGOTT must be strictly observed.
7. 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 that may exist between the inspector and member companies.

SECTION 5

5.1 The distributed report

The responses recorded by the inspector (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 report must be validated by the member commissioning the inspection prior to processing in the SIRE system and transmission to the vessel operator.

The report does not replicate the pages of the VIQ but is distributed in an abbreviated form. It consists of a conversion of the inspector's responses into a uniform report format. The report is divided into three sections:

Section 1

General information.

Contains the information required in chapter 1 of the VIQ plus answers to certain questions from other VIQ chapters where specific details or dates are required.

Section 2

Questions marked '**Yes**' without comment.

Lists, by index number **only**, the questions in the VIQ which have been checked with a '**Yes**' response but without any comments from the inspector.

Section 3

Questions marked '**No**', '**Not seen**', '**Not applicable**' or otherwise commented upon, and any additional comments at the end of a chapter.

Contains in their entirety:

- (a) All VIQ questions which have been answered with a '**No**', '**Not seen**' or '**Not applicable**' response, as well as the explanatory comments made by the inspector to these responses.
- (b) All other VIQ questions which have been commented upon either in the "observation" or "other inspector comments" sections, together with the comment.
- (c) Any additional comments made at the end of the VIQ chapters.
- (d) In some cases, depending on the variants chosen, the SIRE report editor will automatically enter a 'Not applicable' response.

Chapter 1 – General particulars

1.1 Vessel Variant.

1.2 Is the inspected vessel subject to USA Regulations?

Vessels operating in, or trading to the USA must comply with USA regulations. If this is the case, select "Yes".

1.3 Name of Vessel.

Prefixes (MT, MV, SS etc.) must not be entered unless the prefix is actually a part of the registered name of the vessel. The name must be entered exactly as it appears on the Certificate of Registry or equivalent.

1.4 IMO number.

If an IMO number has not been assigned, check the box "Not applicable"

1.5 Official Number or Vessel Identification Number.

If an Official Number or Vessel Identification Number (VIN) has not been assigned, check the box "Not assigned"

1.6 Date of the inspection.

1.7 Port of the inspection.

1.8 Geographic region where the vessel normally trades.

1.9 Flag.

1.10 Deadweight / Barrels

DWT or Barrels capacity

1.11 Gross tonnage.

1.12 Date the vessel was delivered.

Record the original date of delivery from the builder's yard. For tugs and barges where month and day are not found use 1 January and year

1.13 Name of the Company commissioning the inspection.

The software automatically inserts the name of the Inspecting Company.

1.14 Name of the inspector. (For use of Inspecting Company only)

The BIQ software automatically inserts the name of the inspector. This is for use by the Inspecting Company and for OCIMF internal purposes only and will not be displayed in the delivered report.

1.15 Time the inspector boarded the vessel.

Unless the inspection was conducted by more than one inspector, do not use the expression (we) in any observation or comment.

1.16 Time the inspector departed the vessel.

1.17 Hull type.

1.18 Vessel's operation at the time of the inspection.

1.19 Products being handled.

1.20 Name of the vessel's Operator.

1.21 Address of the vessel's Operator.

1.22 Telephone number.

1.23 Fax number.

1.24 Email address.

1.25 Date the Operator assumed control of the vessel.

1.26 Does the data entered in the SIRE Barge and Tug Particulars Questionnaire appear to be accurate and up to date?

Inspectors should randomly check that the Barge or Tug Particulars Questionnaire (whichever applies) entries are accurate and up to date.

1.99 Additional comments

Chapter 2 – Certification and documentation

2.1 Has the vessel been provided with national or international trading certificates?

A single Certificate of Documentation may be issued to meet this requirement.

2.2 Has the vessel been provided with a Certificate of Registry?

2.3 If applicable, has the vessel been provided with a Continuous Synopsis Record (CSR)?

Issued in accordance with SOLAS 2002 XI-1 Reg 5 effective 1st July 2004. For vessels constructed prior to this date the CSR shall provide the history of the vessel as from 1st July 2004.

2.4 If applicable, has the owner/operator been issued a Document of Compliance (DoC)?

The issuing authority for the DoC and the SMC may be different organizations, but the name of the operator must be the same on both. There should be a copy (which need not be a certified copy) of the DoC on board, which shows that the original has been endorsed for the annual verification.

2.5 If applicable, has the vessel been provided with a Safety Management Certificate (SMC)?

The SMC is subject to a renewal verification every five years, and at least one intermediate verification, which, if only one, shall be between the second and third anniversary.

2.6 If applicable has the vessel been provided with a Safety Equipment Certificate, supplemented by Form E?

Applicable to vessels subject to SOLAS requirements.

2.7 If applicable, has the vessel been provided with a Radio Certificate?

In the USA, the certificate is issued by the FCC.

2.8 Has the vessel been provided with a Safety Construction Certificate?

The Safety Equipment, Safety Radio and Safety Construction Certificates might be on the same form, called the Ship Safety Certificate. Form C will be attached instead of Forms E and R. There should be evidence that each annual survey has been carried out.

2.9 If applicable, has the vessel been provided with an IOPP Certificate, supplemented by Form A or B?

An IOPP Certificate may or may not, be issued. Issuance may be dependent upon the trading area of the vessel and according to the requirements of the controlling Administration.

2.10 If an IOPP Certificate has been issued, what is the vessel's designation as recorded in the IOPP Certificate, Form B, Question 1.11?

2.11 Has the vessel been provided with a Statement of Compliance supplement?

Required for vessels that are subject to the Condition Assessment Scheme. A Statement of Compliance should be issued by the administration every 2.5 years.

2.12 If applicable, has the vessel been provided with a Loadline Certificate?

2.13 Has the vessel been provided with an International Ship Security Certificate or equivalent?

The ISPS Code came into effect on 1st July 2004. The ISSC is subject to renewal verification every five years, and at least one intermediate verification, which, if only one, shall be between the second and third anniversary. Actual requirements will vary from country to country. US Flag vessels are required to be issued with a USCG Approval Letter. AWO Members operate under the American Waterways Operators Alternate Security Program. There should be a letter available on the operators letterhead addressed to the USCG stating their intention to operate under the AWO alternate security Program.

2.14 If applicable, has the vessel been provided with an International Sewage Pollution Prevention Certificate?

Applies to vessels delivered after 27th Sept. 2003, and to existing vessels by 27th Sept. 2008. Vessels trading in the USA require a USCG approved system, but a formal certificate will not be issued.

2.15 If applicable, has the vessel been provided with an International Tonnage Certificate?

2.16 If applicable, has the vessel been provided with a Minimum Safe Manning Document?

If the vessel has been provided with a MMD, list the required and actual numbers for both officers and ratings.

2.17 If applicable, has the vessel been provided with an International Anti-fouling System Certificate, or Statement of Compliance?

The IAFS Convention on the control of antifouling systems is not yet in force, but it is recommended that owners comply not later than 1st January 2003. (MEPC.102)

2.18 If applicable, has the vessel been provided with an International Air Pollution Prevention Certificate, with supplement?

Required for each engine of more than 130 kw installed on or after 1st January 2000, with Records of Construction, a Technical File and Means of Verification. Annex VI (International Air Pollution Prevention Certificate) entered into force for the Baltic Sea on 19th May 2006.

2.19 If applicable, has the vessel been provided with a Certificate of Fitness for the Carriage of Chemicals?

This will be issued either under the IBC or BCH Code for chemicals, or the IGC, GC or EGC Code for gas. Gas carriers carrying dual code cargoes must have a NLS Certificate.

2.20 If applicable, has the vessel been provided with a Certificate of Fitness for the Carriage of Gas?

2.21 If applicable, has the vessel been provided with a Noxious Liquid Substances Certificate or an endorsement that is listed on the Certificate of Inspection (COI)?

A NLS Certificate is required for any vessel carrying MARPOL Annex 2 cargoes that does not have a Certificate of Fitness for the Carriage of Chemicals.

2.22 Has the vessel been provided with a Civil Liability Convention (1992) Certificate?

The name of the owner should be the same as that on the Certificate of Registry. If the vessel is not provided with a CLC, record the insurance that is in place and the amount of cover provided.

2.23 What is the Name of vessel's P and I Club or equivalent insurance broker?

Indemnity may be provided by a P and I club or an equivalent entity.

2.24 If applicable, does the vessel possess a US Certificate of Financial Responsibility?

Required for vessels over 300grt. Confirmation of COFR must be on board.

2.25 If applicable, what is the USCG Certificate of Compliance date of expiry?

A Certificate of Compliance (COC) is issued to all oil, chemical and gas tankers and is valid for two years. In the USA, this applies only to foreign flag vessels and vessels trading between USA and Canada. Requirements for the COC are listed in CFR 46. 153.809

2.26 Is the vessel Qualship certified?

2.27 What was the issuing date of the last USCG Certificate of Inspection?

2.28 Does the vessel carry a USCG Certificate of Documentation?

A certified copy may be accepted.

- 2.29 If a Marine Vapor Recovery System is fitted, is a USCG Certificate provided?**
If so fitted, the Certificate of Inspection (COI) should be endorsed to state that the vessel is fitted with a Vapor Recovery System.
- 2.30 Is the vessel registered with a Classification Society?**
- 2.31 Which Classification society is the vessel registered with?**
- 2.32 What is the date of expiry of Class Certificate?**
This will usually be the same date as that when the next Special Survey is due.
- 2.33 What was the date of the last Intermediate Survey?**
- 2.34 What was the date of the last Annual Survey?**
- 2.35 What was the date of the last Survey Report?**
- 2.36 What was the date of the last Special Survey?**
- 2.37 What is the date of the next Special Survey?**
USCG Internal Structure and Examination Survey
- 2.38 Is the vessel free of outstanding USCG 835 deficiencies?**
- 2.39 Is the vessel operating within its certificate renewal dates applicable to drydocking and structure?**
Record if the vessel operating on a drydock or external or internal structural survey extension?
- 2.40 Is the Loading Record Book complete and up to date?**
- 2.41 Is the vessel approved for the carriage of USCG Sub-chapter O and/or D cargoes?**
If Sub chapter "D", only list the vessels trade at time of inspection.
- 2.42 Is the General Arrangement Plan available and legible?**
The general arrangement plan should indicate the layout of entrances/exits of the boat and the location of the firefighting equipment on the boat.
- 2.43 If applicable, is a Damage Stability Plan on board?**
Applicable to coastwise or seagoing vessels only. Either the plan or evidence of 3rd party Damage Stability agreement should be provided.
- 2.44 What is the interval between scheduled drydockings?**
Record the interval between scheduled drydockings in months. If the vessel is operating on an extension of drydock, record the details.
- 2.45 What was the date of departure from the last scheduled drydock?**
In-water repair periods do not qualify as dry-docking. If the vessel's last drydock was unscheduled (e.g. as a result of an accident) record the details.
- 2.46 What was the date of last port State control inspection?**
Date of last regulatory inspection (flag state or PSC). Check USCG PSIX website for details
- 2.47 Was the last port State control inspection report free of unresolved deficiencies?**
If No, list the nature of the unresolved deficiencies. Check USCG PSIX web site for details
- 2.48 If propane gas is used for cooking and/or heating, is the equipment operated outside of a gas-hazardous area; is a certificate provided and is it valid?**

2.49 Is the Quality Manual (Safety Management Manual) available on board and are personnel familiar with its contents and are these being followed?

This should include the Operator's Health, Safety and Environment (HSE) policy. NPDES - Vessel General Permit

2.50 Has the operator's representative visited the vessel within the last six months?

Check for documentation and record date of last visit

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

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

2.52 Does the master review the "Safety Management System" and report to the operator on any deficiencies?

The master's review of the operator's policies and procedures should be carried out annually and there should be documentary evidence of these available.

2.53 Is the vessel 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. Where class records address structural issues of concern, including bottom pitting, areas of substantial corrosion, cracks, buckling or serious indents, record the details as to the extent and the measures taken to arrest further development. Where a condition of class has been postponed, the details including the condition, original date and the new date for completion should be recorded. If records indicate that measures have been taken to address or restore loss of longitudinal or transverse strength, record the details and the repairs undertaken. The existence of doublers anywhere within the vessel's structure and deck strapping must be reported. Note: If conditions of class have not been completed by the required due date, then the classification of the vessel may be subject to suspension.

2.99 Additional comments

Chapter 3 – Crew management

- 3.1 If applicable, has the vessel been issued an ISM Safety Management Certificate?**
- 3.2 If the vessel has been provided with a Minimum Manning Document (MMD) or equivalent and does the actual manning meet or exceed the MMD requirements?**
Personnel responsible for cargo carriage or transfer must be suitably qualified to handle the cargoes on board
- 3.3 If the vessel is unmanned, record the name of the company, or companies providing the manpower?**
Attending personnel must be suitably trained and qualified to handle cargo transfer. The company providing personnel must ensure that evidence of training and qualifications are carried by these persons and are made available to inspectors on request. Newly employed or joining personnel must be familiarized with the operational aspects of the vessel. In the USA, tankermen or person in charge shall hold a USCG endorsement for the cargo being handled.
- 3.4 If the vessel is manned, complete the attached crew matrix for all officers and ratings**
Inspector should record all personnel aboard additionally, record all officer and tankerman/PIC information in the crew matrix. Years in rank should be recorded as actual sea time not total time the licence is held.
- 3.5 If the vessel is manned, are personnel directly employed by vessel's Operator?**
- 3.6 Are policies relating to work and rest periods in place and are they being complied with?**
Such policies are applicable to all personnel involved with operations. Records for hours of rest must be maintained for both manned and unmanned vessels. These, and physical evidence must show that hours of rest are at least in accordance with those applicable in STCW. In the USA the maximum permitted working hours are not more than fifteen in any twenty-four hours. Shore based tanker persons in the US work on a 16 hour basis including travel time to the job site.
- 3.7 Does the Operator or the contractor supplying personnel, have a Drug and Alcohol policy that meets or exceeds OCIMF guidelines?**
OCIMF recommends that officers and ratings observe a period of abstinence from alcohol prior to scheduled watchkeeping duty or work periods. The objective should always be to ensure that, prior to going on scheduled duty, the blood alcohol content of the seafarer is theoretically zero. (OCIMF Guidelines for the control of drugs and alcohol). In the USA, tankermen must be enrolled in a Department of Transport approved Drug and Alcohol policy. The D and A policy must be posted in a prominent position, state the maximum permitted level of blood alcohol and the frequency of D and A testing.
- 3.8 What was the date of the last unannounced drug and alcohol test?**
25% Of the crew should be tested annually
- 3.9 What is the frequency of unannounced drug and alcohol testing?**
Record the interval between scheduled random drug testing in Months
- 3.10 What was the date of the last unannounced test for drugs?**
- 3.99 Additional comments**

Chapter 4 – Navigation and communications

4.1 Is an up to date Operator's Navigational and Bridge Organization Manual on board that lists the duties of the watchkeeping responsible persons?

This may be called "Bridge familiarization and Management Procedures". Does it address procedures in high risk navigational situations. e.g. restricted visibility, high traffic density, reduced manoeuvrability etc.?

4.2 Is the vessel provided with adequate operator's navigation instructions and procedures?

The navigation, training and bridge procedures policies should be reviewed. The existence of established bridge organization procedures and the professional application of ship handling and navigational practices in compliance with international regulations should be ascertained. Bridge manuals and navigation procedures should include general information and requirements on bridge organization, watchkeeping, navigation and navigation equipment, charts, pilotage and port arrival and departure procedures. The operator's procedures should include at least the following: A clear statement that safety of life and the safety of the ship take precedence over all other considerations; Allocation of bridge watchkeeping duties and responsibilities for navigating procedures; A clear definition of the duties of the watch-keeping officers; Circumstances when the master must be called; Chart and nautical publication correction procedures including, if appropriate, electronic chart corrections; Procedures to ensure that all essential navigation equipment is available and fully operational. A hard copy of the operator's navigation policy and procedures must be available on the bridge.

4.3 If applicable to the type of vessel, is the navigational equipment appropriate and operating satisfactorily?

Regardless as to whether a vessel is required by legislation to carry specific navigational equipment, if navigational equipment is fitted then it should be operational. Such equipment may be a course recorder, off-course alarm, and electronic chart display, engine order logger/printer or other equipment. The inspector should make spot checks to ensure that equipment, as fitted and as appropriate to the vessel, is operational. If equipment is either missing or not operational, record this as an observation.

4.4 Is an operational magnetic compass with light provided?

CFR 164.70 and 164.72 Each towing vessel must be equipped with either: 1. An illuminated swing-meter or an illuminated card type magnetic steering compass readable from the vessel's main steering station, if the vessel engages in towing exclusively on Western Rivers; or 2. An illuminated card type magnetic steering compass readable from the vessel's main steering station for US navigable waters other than western rivers and waters seaward of navigable waters and 3 NM or more from shore on the Great Lakes.

4.5 Is an operational gyro compass provided?

4.6 If required, is an operational Global Maritime Distress and Safety System (GMDSS) provided?

SOLAS classed vessels required GMDSS and personnel must be qualified in its use.

4.7 Is an operational Global Positioning System receiver (GPS) provided?

(GPS) is the standard generic term for satellite navigation systems

4.8 Is an operational main engine RPM indicator provided?

4.9 Is the vessel equipped with an operational radar?

As per CFR, the vessel should be equipped with a compliant radar. If the vessel has oceans, coastwise, limited coastwise or Great Lakes route. The radar and its installation must be suitable for the intended speed and route of the vessel. Each vessel of 100 or more gross tons must be fitted with general marine radar in the pilothouse as per CFR. As per SOLAS - All ships of 300 gross tonnage and upwards a 9 GHz radar, or other means to determine and display the range and of radar transponders and of other surface craft. Inspector to record number, location/s and type of radars fitted.

4.10 If fitted, is pilothouse alerter operational?

- (a) Except as provided in paragraph (d) or (e) of this section, a towing vessel with overnight accommodations and alternating watches (shift work), when pulling, pushing or hauling alongside one or more barges, must have a system to detect when its master or mate (pilot) becomes incapacitated. The system must:
- (1) Have an alarm in the pilothouse distinct from any other alarm;
 - (2) Require action from the master or officer in charge of a navigational watch, during an interval not to exceed 10 minutes, in order to reset the alarm timer; and
 - (3) Immediately (within 30 seconds) notify another crewmember if the pilothouse alarm is not acknowledged.
- (b) The time interval for the system alarm must be adjustable. The time may be adjusted by the owner or managing operator but must not be in excess of 10 minutes. This time interval, and information on alerter operation, must be provided on board and specified in the vessel's TSMS if applicable.
- (c) The system alarm may be reset physically (e.g. a push button), or the reset may be accomplished by a link to other pilothouse action such as rudder or throttle control movement, or motion detection of personnel.
- (d) A towing vessel need not comply with this section if a second person is provided in the pilothouse.
- (e) Towing vessels 65 feet or less in length are not required to have a pilothouse alerter system.

4.11 Is an operational VHF Radio provided?

4.12 Are operational hand-held radios (walkie talkies) provided?

Portable VHF/UHF radios should be type-approved for use in gas-hazardous areas.

4.13 Is an operational search light provided?

4.14 Are operational sound signals provided?

4.15 If fitted, is an operational depth sounder provided?

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. Performance of the echo sounder should be tested on all ranges and scales to verify recordings against depths shown on the chart. Verify the depth sounder is adjusted to reflect the deepest draft of the tug/barge unit. The following should be marked on the chart, where it enhances safe navigation: Positions where the echo sounder should be activated; Not applicable for inland towing vessels.

4.16 If fitted, is the speed and distance indicator operational?

Doppler speed input on tugs is not very accurate if pushing barges.

4.17 Is a rudder angle indicator provided?

On Towboats with full follow-up mechanical steering, the levers are the indicators

4.18 Is a rate of turn indicator provided?

Synonymous with "swing meter". The rate of turn indicator can be a standalone unit or integrated with an ECS.

4.19 Are operational navigation lights and signals provided?

If LED light bulbs are utilized, be sure the alarms (if fitted) are not bypassed to accommodate the LED lights. If light stands are used on a barge, the interior of the light box should be painted flat black.

4.20 If Applicable, is an operational single side band (SSB) radio provided?

Not required on SOLAS class vessels.

- 4.21 If applicable, is an operational Digital Selective Calling (DSC) Communications system fitted?**
SOLAS classed vessels required GMDSS and personnel must be qualified in its use.
- 4.22 Is an operational ARPA system provided?**
- 4.23 Is an operational Automatic Identification System (AIS) provided?**
The AIS should be operated at low power when the vessel is alongside a terminal when cargo transfer is under way.
- 4.24 Is an operational NAVTEX system provided?**
Required on SOLAS classed vessels or the vessel operated more than 100 nautical miles but not more than 200 Nautical Miles from the nearest land.
- 4.25 Is an operational automatic gyro pilot provided?**
Is an operational auto-pilot provided?
- 4.26 Are appropriate optical signals/daylight shapes provided?**
- 4.27 Is an operational internal communication system provided?**
- 4.28 Is an operational general alarm provided?**
46CFR Subpart B 27.201 The general alarm contact maker must be located at the operating station (principal steering station on the vessel, from which the vessel is normally navigated), capable of notifying persons in any accommodation, work space, and the engine room, and has installed, in the engine room and any other area where background noise makes a general alarm hard to hear, a supplemental flashing red light that is identified with a sign that reads: "Attention General Alarm - When Alarm Sounds or Flashes Go to Your Station".
- 4.29 Are operational binoculars provided?**
- 4.30 Are local regulations relating to navigation and collision avoidance provided, and are these adequate for the vessel's trading area?**
This may be called "Bridge familiarization and Management Procedures". Does it address procedures in high risk navigational situations. e.g. restricted visibility, high traffic density, reduced maneuverability etc.?
- 4.31 Are the navigation charts, light lists, tide tables and pilot books provided, adequate for the vessel's trading area?**
Fully corrected and up to date charts should be provided for at least the most recent previous voyage and the forthcoming voyage. If navigational aids additional to those addressed in this questionnaire have been provided, list these in the Additional Comments. All required publication except charts can be maintained in an electronic form and backup system must be provided. On Inland river towboats the requirement is to have the most current edition chart and most recent Notice to Mariners.
- 4.32 If fitted, is an Electronic Chart System operational, are there adequate policies and procedures in place and are wheelhouse personnel familiar with it?**
Operator Quality Manual (Safety Management Manual) to address following procedures as applicable:
- Primary means of Navigation (ECS or Paper Charts)*
 - Loss of charts, display systems and/or publications in a Safety Management System*
 - Letter of conformity to show that the display requirements meets the requirements set out in the Coast Guard NVIC circular 01-16, COMDTCHANGE Note 16700.4. There are two ways to meet the standard (1 A manufacturer's declaration of conformity, OR (2) Type-Approval Documentation of the system.*
 - If identified as the primary means of navigation, ECS identified as critical equipment*
 - Back-up arrangement when using ENCs*

- *Guidance on the computer used for ECS should not be used for any other purpose*
- *Training on ECS addressing the risk of over-reliance on ENCs and display systems, basic navigation functions, route planning and monitoring, charts update, etc.*

4.33 Cyber risks management processes that are incorporated into the existing operational routine.

4.34 Are emergency or auxiliary steering gear / pump changeover instructions posted and are they clearly understood?

Describe secondary steering system

4.35 If a bow or stern thruster is fitted, are operating instructions provided and are the directions of thrust clearly indicated on the operating console?

4.36 Are the air draughts clearly displayed in the wheelhouse?

The vertical distance from the water line to the top of the highest structure on the vessel or combined units must be displayed.

4.37 Are local navigation warnings received on board on a regular basis, and readily available to the navigators?

4.38 Was a comprehensive passage plan available for the previous voyage and did it cover the full voyage from berth to berth?

A detailed voyage or passage plan should be prepared which should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used This planning, at a minimum must include all of the following items:

- *Whether the towing vessel has sufficient power to control the tow under all foreseeable circumstances.*
- *Check the planned route for proximity to hazards.*
- *Charts, Light List, Tide Tables, Notice to Mariners, Coastal pilot for intended routes*
- *Bar crossings, Bridge transits, Restricted waterways, Locks*
- *Pilothouse Personnel are Posted for the intended routes*
- *Forward and after drafts of the barge or barges and under-keel and vertical clearances (air-gaps) for all bridges, ports, and berthing areas Note: Air draughts should be clearly displayed in the wheelhouse*
- *Communication contacts at any Vessel Traffic Services, bridges, and facilities, and any port-specific requirements for VHF radio*

4.39 Are the intervals between position fixes appropriate to the vessel's location?

Position monitoring in narrow channels should be continuous. Otherwise, the frequency of position fixing should be such that the vessel cannot run into danger during the interval between fixes.

4.40 Are procedures in place for the testing of bridge equipment before arrival and departure?

The steering gear shall be checked and tested within twelve hours of departure. (SOLAS V.26.1) The date upon which the checks and tests are carried out and details of emergency steering drills shall be recorded. (SOLAS V/26.6)

4.41 Are pre-arrival, pre-departure and watch handover checklists being completed?

The inspector should mark NO and provide observation if any one of the three checklists are not available. For ocean tugs these checklists should be consistent with the Bridge Procedures Guide. Essential systems/equipment test and frequency to include requirements as listed in Title 46, Chapter I, Sub-M, table 143.245(b).

Regardless of whether a vessel is issued a COI, if answer to this question is no, the inspector should leave an observation.

4.42 Is the satellite Emergency Position Indicating Radio Beacon (EPIRB) fitted, armed and labeled correctly and inspected in accordance with the manufacturer's requirements?

The EPIRB shall be: Installed in an easily accessible position; Ready to be manually released and capable of being carried by one person into a survival craft; Capable of floating free if the ship sinks and of being automatically activated when afloat; and Capable of being activated manually. Notes: The vessel's name, the serial number and the maritime mobile services identity (MMSI or 15 Hex ID) should be clearly indicated on the EPIRB.

4.99 Additional comments

Chapter 5 – Safety management

General safety

5.1 Is the deck area free of visible safety deficiencies?

5.2 Does the Operator provide adequate personal protection equipment, (PPE) appropriate to the cargo(es) being carried and is it being used correctly?

Personnel should be properly trained in the use of PPE.

5.3 If the vessel is fitted with Auxiliary boat, are operator policies and procedures being complied with?

Operator Safety Management Manual should to include below:

- The company describes the purpose for the auxiliary boat in their SMS or operations manual*
- Procedures for launching and stowing*
- Required PPE and onboard inventory*
- A record of maintenance and or testing of the equipment used to operate or launch the auxiliary boat*
- Number of persons required to lower the auxiliary boat*
- Any limitations such as number of crew or weight capacity to ensure safe loading*
- Prior to operation a JHA/JSA*
- Fuel for the auxiliary boat stored in locker.*

In addition to above, a skiff may be substituted for all or part of the approved survival craft for towing vessels that do not operate more than 3 miles from shore. A skiff used as a survival craft must:

- (a) Be capable of being launched within 5 minutes under all circumstances*
- (b) Be of suitable size for all persons on board the towing vessel*
- (c) Not exceed the loading specified on the capacity plate*
- (d) Not contain modifications affecting the buoyancy or structure of the skiff*

5.4 Are all responsible persons aware of the emergency procedures for dealing with leakage, spillage or fire involving the cargo?

5.5 Are places where smoking is permitted adequately identified, are smoking regulations being observed, and are doors and other means of access kept closed?

Warning notices should be posted on the doors to these designated compartments.

5.6 Is the IMO Coastal Contact list or local equivalent provided? For SOLAS vessels.

The IMO Contact list, contained in the Vessel Response Plan, (or its local equivalent) should be up to date. The master should be aware of port contact procedures and a Contact List should be drawn up for the current port. For vessels subject to SOLAS requirements.

5.7 Is the vessel provided with a safe means of access?

Safe access to small craft is often difficult. Inspectors should use good judgment to determine that access to or between vessels, tugs and jetties access is safe. Vessels should have a lifebuoy, light and rescue line at, or near the point of access. Alternatively, personnel should be provided with, and should wear a personal flotation device with water-actuated light. All access and working areas should have adequate lighting.

5.8 Is loose gear on deck or in internal spaces properly secured?

5.9 Is an operational emergency lighting system provided?

Spot check emergency lighting if possible.

5.10 If applicable, is an operational accommodation gas detection system provided?

Fire Fighting Equipment

5.11 Is an Emergency Plan posted?

The plan should indicate the location of fire and lifesaving equipment and posted in a common area. If the vessel is classed the plan should be classed approved.

5.12 Is sufficient fire fighting equipment on board, which may include hoses, nozzles, firemen's outfits, breathing apparatus and portable extinguishers and is it in satisfactory condition, and ready for immediate use?

Sufficient equipment should be provided to respond to fire emergencies. The equipment should be in satisfactory condition and records should indicate proper maintenance. This equipment may be carried permanently on board, or provided when cargo is being transferred.

Each towing vessel 79 feet or more in length operating on oceans and coastwise routes that does not have an installed fixed fire-extinguishing system must have the following:

- (a) At least two firefighter's outfits that meet NFPA 1971; and*
- (b) Two self-contained breathing apparatus of the pressure demand, open circuit type, approved by the National Institute for Occupational Safety and Health (NIOSH). The breathing apparatus must have a minimum 30-minute air supply and full facepiece.*

For carriage requirement of hand-portable fire extinguishers and semi-portable fire-extinguishing systems on all vessels, please refer to Title 46, Chapter I, Sub-M Part 142.230.

The records of inspections and tests of hand-portable fire extinguishers and semi-portable fire-extinguishing systems may be recorded on a tag attached to each unit by a qualified servicing organization.

Testing of fire main and hoses: The fire main system must be charged, and sufficient pressure must be verified at the most remote and highest outlets. All fire hoses must be inspected for excessive wear and subjected to a test pressure equivalent to the maximum service pressure.

- (a) A fixed fire pump must be capable of:
 - (1) Delivering water simultaneously from the two highest hydrants, or from both branches of the fitting if the highest hydrant has a Siamese fitting, at a pitot-tube pressure of at least 344 kilopascals (kPa) (50 pounds per square inch (psi)), and a flow rate of at least 300 liters per minute (lpm) (80 gallons per minute (gpm)); and*
 - (2) Being energized remotely from a safe place outside the engine room and at the pump.**
- (b) All suction valves necessary for the operation of the fire main must be kept in the open position or capable of operation from the same place where the remote fire pump control is located.*
- (c) The fire main must have a sufficient number of fire hydrants with attached hose to allow a stream of water to reach any part of the machinery space using a single length of fire hose.*
- (d) The hose must be a lined commercial fire hose 15 meters (50 feet) in length, at least 40 millimeters (1.5 inches) in diameter, and fitted with a nozzle made of corrosion-resistant material capable of providing a solid stream and a spray pattern.*
- (e) The portable fire pump must be self-priming and power-driven, with:
 - (1) A minimum capacity of at least 300 LPM (80 gpm) at a discharge gauge pressure of not less than 414 kPa (60 psi), measured at the pump discharge;*
 - (2) A sufficient amount of lined commercial fire hose 15 meters (50 feet) in length, at least 40 mm (1.5 inches) in diameter and immediately available to attach to it so that a stream of water will reach any part of the vessel; and*
 - (3) A nozzle made of corrosion-resistant material capable of providing a solid stream and a**

spray pattern.

(f) The pump must be stowed with its hose and nozzle outside of the machinery space

5.13 If fitted, are fixed fire, smoke and gas detection systems and emergency systems fully operational, tested, and are the inspection records up to date?

The detections system includes Smoke detectors in berthing space and heat detection sytem in galley. Vessel should have a copy of the PE letter.

5.14 If a fixed fire fighting system is installed, is it in satisfactory condition?

If a fixed fire fighting system is installed, records of the last analysis of halon, foam and/or dry powder should be provided. If a fixed CO2 fire fighting system is installed, the date of its last testing should be on board. Alcohol resistant foam must be provided for chemical carriers.

5.15 If fitted, is the type of foam compound suitable for the cargoes which the vessel is certified to carry?

5.16 Do personnel demonstrate effective firefighting and safety training and competence?

Typically records of training are not maintained on board. Verbal verification of competence during interview and records of drills should be verified.

5.17 If vessel fitted with deck water spray, is it in satisfactory condition?

If the vessel is provided with a deck water spray system, specify whether the system uses fresh water or sea water and record where the water is supplied from.

5.18 Are flammable/combustible materials properly stored?

(a) Paints, coatings, or other flammable or combustible products onboard a towing vessel must be stored in a designated storage room or cabinet when not in use.

(b) If a storage room is provided, it may be any room or compartment that is free of ignition sources.

(c) If a dedicated storage cabinet is provided it must be secured to the vessel so that it does not move and must be either:

(1) A flammable liquid storage cabinet that satisfies UL 1275 or

(2) A flammable liquid storage cabinet that satisfies FM Approvals Standard 6050 or

(3) Another suitable steel container that provides an equivalent level of protection.

(d) A B-II portable fire extinguisher must be located near the storage room or cabinet.

(d) Safety Data Sheet to be provided for combustible/flammable products as applicable.

5.19 Is the emergency stop for the accommodation ventilation system clearly marked?

Note condition of fire dampers or vent covers

Lifesaving Equipment

5.20 Is lifesaving equipment on board; is it in satisfactory condition and ready for immediate use and are personnel familiar with its operation?

A procedure should provide familiarization of new personnel with use of lifesaving equipment. Emergency drills should be undertaken at regular and frequent intervals. Verification of following drills at a minimum: Fire, flooding, abandoning vessel, launching of survival craft*(Offshore vessel), action during heavy weather, person overboard, failure of propulsion, steering or control system. Station Bills/Muster lists should be posted and up to date. The station bill must identify duties and duty stations of each person onboard during an emergency. The required number and type of distress signals on board should be in date, properly stowed and ready for immediate use. The capacity of the life raft(s) must be sufficient for the vessel's complement; in satisfactory condition and hydrostatic releases "if fitted" must be correctly attached and ready for immediate use. Lifejackets should be provided for all personnel, in satisfactory condition and fitted, as required with self-igniting light, or line. Lifejacket donning notices should be posted. A towing vessel of at least 26 feet, but less than 79 feet, in length must carry a minimum of two

lifebuoys located on opposite sides of the vessel where personnel are normally present. Lifebuoys must be at least 610 millimeters (24 inches) in diameter. A towing vessel 79 feet or more in length must carry four lifebuoys, with one lifebuoy located on each side of the operating station. Lifebuoys must be at least 610 millimeters (24 inches) in diameter.

The emergency equipment locker should be clearly marked and easily accessible.

5.21 If applicable, are survival suits provided for all personnel?

An approved immersion suit is to be provided for every person on board ship, no later than the first safety equipment survey on or after 1 July 2006. Exemptions from this requirement may still be granted by Administrations for ships constantly engaged on voyages in warm climates, except for bulk carriers (as defined in SOLAS regulation IX/1).

5.22 Are safety ropes and equipment available to effectively undertake rescue from enclosed spaces?

5.23 If applicable, are emergency escape sets provided on board where required?

Emergency escape sets should be provided in machinery spaces and other manned enclosed spaces. If the vessel is assigned to a barge carrying toxic cargoes, emergency escape packs must be provided for all personnel.

5.23.2 Are waste receptacles made of non-combustible materials?

Unless other means are provided to ensure that a potential waste receptacle fire would be limited to the receptacle, waste receptacles must be constructed of non-combustible materials with no openings in the sides or bottom.

5.23.3 Are the deck officers who have immediate responsibility for ATB operations in possession of proper licensing and certification?

Sight licenses and Towing Officer's Assessment Record (TOAR). Watch standing Deck Officers USCG license to be endorsed as Master/ Mate of towing Near Coastal or Oceans for the appropriate tonnage of the vessel and or be in possession of a valid TOAR (ATB endorsement). Training and/or familiarization on the operation of the connection device should be documented.

Operational Safety

5.24 Are Safety Data Sheets (SDS) provided for the cargoes being carried and are they posted?

Safety Data Sheets (SDS) should be provided for all cargoes and bunkers carried. Need not be posted on inland barges.

5.25 Are all responsible persons aware of the emergency procedures for dealing with leakage, spillage or fire involving the cargo or fuel?

This should be verified by interviewing at least one crew member.

5.26 Is the vessel provided with appropriate safety and protective equipment required by the IBC and BCH Codes?

5.27 If appropriate to the cargoes carried, are gas-tight proximity suits or chemical resistance suits available and in satisfactory condition?

5.28 Is continuous communication between the barge and tug, or the barge and dock, being maintained?

5.29 Are dangerous cargo signals (red flag or red light) displayed?

5.30 Are procedures in place to respond to a breakout from the berth during cargo operations?

5.31 Are procedures in place to keep the accommodation space free of gas?

Personnel should be aware of the dangers associated with the generation of gas, particularly in cases where hydrocarbon vapors may accumulate around the deck and accommodation spaces in calm weather conditions. Manned vessels fitted with air conditioning systems should maintain these on partial re-circulation during cargo operations to ensure that the accommodation spaces are maintained at positive pressure at all times. In the event that hydrocarbon gas may enter the accommodation the only course of action may be to shut down the air conditioning unit(s).

5.32 Are procedures in place to respond to the development of dangerous concentrations of gas?

5.33 Are procedures in place to respond to a failure of the steering gear?

5.34 Are notifications and response procedures in place to respond to collision or grounding?

5.35 Are procedures in place to respond to situations that involve the jettisoning of cargo?

5.36 Are procedures in place to ensure that oxygen levels are safely controlled during nitrogen purging?

5.37 If applicable, are procedures in place to ensure that oxygen levels are safely controlled during nitrogen purging?

5.38 Are procedures in place to ensure that self-reacting products are handled safely?

5.39 If a pump room is installed, does it meet controlling international, national and local regulations?

The pumproom should be equipped to meet SOLAS equivalent requirements for lighting, ventilation, high level bilge alarm, gas monitoring. The pumps should be fitted with temperature sensors. If the vessel is not equipped with any of the foregoing, the question must be answered "No"

5.40 Are means provided for the testing of void spaces for explosive and/or toxic gases?

During loaded voyages, records of testing should be maintained.

5.41 If portable gas detection instruments are provided, do personnel demonstrate familiarity with their operation and calibration?

Portable instruments appropriate to the cargoes being handled should be carried and should be in satisfactory working condition.

5.42 If fitted, are emergency eye bath, sprays and decontamination showers available and in satisfactory condition?

When the vessel operates in areas of low ambient temperatures, means to protect against freezing must be provided.

5.43 Are emergency first aid kits available?

5.44 When an unfamiliar cargo is to be carried, is there a procedure to review the safety aspects and handling procedures?

5.45 Are satisfactory safety procedures provided for entering pumprooms, cargo tanks, enclosed and other dangerous spaces, and for hot work?

5.46 If the vessel is carrying benzene regulated cargo, are warning signs posted and is the restricted zone marked?

Inspector should verify that the crew is operating in accordance with their Benzene plan.

Tank Cleaning Safety

5.47 Do the responsible persons understand the dangers associated with cleaning tanks that have previously contained toxic products?

Tank cleaning is one of the most hazardous operations in tankers and tank barges. Every precaution must be taken to guard against the dangers associated with static electricity during tank cleaning and use of re-recycled wash water. The toxic hazards when tank cleaning after the carriage of chemicals must be understood. It is essential that a comprehensive tank cleaning guide is available on board. Some major chemical tanker operators have developed their own comprehensive tank cleaning guidelines, and these should be reviewed. If they have not, a recognized professionally produced industry publication should be available on board.

5.48 Are the dangers associated with tank cleaning clearly understood?

Inspector should interview PIC(s). Tank cleaning is one of the most hazardous operations in tankers and tank barges. Every precaution must be taken to guard against the dangers associated with static electricity during tank cleaning and use of re-recycled wash water. The toxic hazards when tank cleaning after the carriage of chemicals must be understood. It is essential that a comprehensive tank cleaning guide is available on board. Some major chemical tanker operators have developed their own comprehensive tank cleaning guidelines, and these should be reviewed. If they have not, a recognized professionally produced industry publication should be available on board.

5.49 Are cargo tank atmospheres controlled during tank cleaning?

Safe and effective procedures should be in place when tank cleaning using chemicals and solvents and when gas freeing and steaming cargo tanks?

5.50 Are deck atmospheres regularly monitored for gas accumulations during cargo transfer and tank cleaning operations?

5.51 If COW is being conducted, is it in accordance with the procedures described in an approved Crude Oil Washing Equipment and Operations Manual?

The vessel should be provided with a Crude Oil Washing Operations and Equipment Manual and all operations should be conducted in accordance with its requirements. The IMO (or equivalent) COW Check List should be completed and personnel should be qualified to conduct COW. Prior to COW, the piping system should be tested to 1.25 its normal operating pressure and a written record of this test should be made. All tanks that are to be Crude Oil Washed must be tested using portable instruments to ensure that the atmosphere is within prescribed limits.

5.52 If fitted, are any hydrant-type connections to the Crude oil washing lines securely closed and capped?

5.53 If fitted, are outside air conditioning units type-approved for use in gas-hazardous areas?

Accommodation doors, openings, ports and ventilators should be closed during cargo and ballast transfer operations. The accommodation atmosphere must be maintained at a positive pressure at all times to prevent the ingress of flammable vapors.

Vessel Security

5.54 Has the vessel been issued with an approved Vessel Security Plan?

Security levels should be established, and personnel should be familiar with them.

5.55 Are measures in place to prevent unauthorized boarding?

This includes provision of a deck watch, gangway notices and effective control of visitors.

5.56 Are drills for emergency procedures being carried out?

5.57 Is there a policy in place for exterior doors to be closed when underway or in gas hazardous areas.

5.58 Are operational limitations for 'notching in' or 'out' known and understood?

This is both environmental and operational parameters - weather, trim, draft etc. The company should have operational procedures for pinning in and out during loading/discharging operations to compensate for change in the barge draft. The company should have procedures for compensating for fuel consumption aboard the tug and consequential change of tug's draft when on sea voyages. The procedure should cover emergency disconnect/connect of the pin system.

5.59 Are tug operational limitations known and understood when disconnected from barge?

The company should have guidance for when the tug is free running or when towing on a hawser if applicable. This information can be found on the tug's Trim and Stability letter.

5.60 Has the engineer received specific in-depth training on the mechanics of the connection system machinery?

Training and/or familiarization on the mechanics of the connections device should be documented.

5.61 Is there a safe means of access provided from the barge to the tug?

The company should have procedures in place for transferring personnel between the tug and the barge.

5.99 Additional comments

Chapter 6 – Pollution prevention

6.1 Is the vessel provided with Oil Record Books?

Regardless as to whether MARPOL Oil Record Books (ORBs) are required by local regulations, equivalent records must be maintained to account for the same operations as contained in the ORBs. Entries in the Oil Record Books, (or their equivalent) must be up to date, accurate and Parts I and II must agree.

6.2 Is an approved MARPOL Shipboard Oil Pollution Emergency Plan (SOPEP) or Shipboard Marine Pollution Emergency Plan (SMPEP) provided?

May be included in the VRP

6.3 Is the vessel provided with a USCG approved Vessel Response Plan (VRP)?

The documentation should include a letter of approval from USCG. Vessel Response Plan regulations are contained in 33 CFR 155. 155.1035 refers to manned vessels and 155.1040 to unmanned. These regulations require that the plan address how the crew will mitigate or prevent a discharge. Any equipment identified in the plan must be provided and in good order. 155.205 applies to oil tankers and offshore oil barges with a LOA of 400 feet. These vessels must be equipped for the containment and removal of on-deck oil cargo spills of at least 12 barrels. A USCG approved spill kit must be provided. If a dump valve arrangement is fitted, it must operate as designed.

6.4 Is suitable equipment provided to deal with small oil spills?

6.5 Are anti-pollution notices posted?

Antipollution warning notices should be posted in conspicuous places on the barge as well as on the tow boat.

6.6 Are bulkheads, pipelines and the hull, free of visible leaks?

Void spaces should be free of product and water. Covers should be tight and fitted with good quality gaskets.

6.7 If fitted, are hydraulic lines on deck free of visible leaks?

6.8 Is a full perimeter spill rail fitted?

A raised steel plate along the cargo deck to a minimum height of 100mm (4 inches) should be fitted. If cargo pumps are fitted on deck, these should be fitted with spill containment. Inspectors should take into account that in certain regions, fitting of this spill bar may be prohibited by national or local regulations. In such cases, the question must be answered "No" with a comment that such fitting is not permitted by the controlling authorities. During cargo operations scupper plugs should be in place and liquid tight.

6.9 Are all the cargo and vapor manifolds provided with spill trays and free of product?

All connections, including those to vapor return system should have spill tray containment beneath.

6.10 Are all hose connections and manifold blank flanges fully bolted?

Manifold valves should be made from steel. Only one spool piece should be fitted outboard of the manifold valve. Flanges should be fully bolted of at least of the same thickness as the flanges to which they are attached. The number of free threads remaining after hose connections or connecting manifold blank flanges should be at least 1/3 times the bolt diameter or 2 pitch. (ASME B16.5)

6.11 Are suitable spill containers fitted around all fuel, diesel and lubricating oil tank vents?

The height of any savealls around bunker tank vents should not be greater than the vent heads themselves, because this could lead to the ingress of water in bad weather if the savealls become filled with water. Containers should be empty of water and free of oil. Drain plugs should be in place in port.

6.12 Are decks free of oily material?

6.13 If fitted, and cross-connected to the cargo system, are sea suction valves fitted with test gauges?

It is recommended that a device be installed to monitor pressure build-up and determine liquid make-up in the section of the pipeline which lies between the inboard and outboard sea valves. Such a device would both provide an early indication of leakage through either valve during cargo handling operations and enable the leaking valve to be identified. During cargo operations pressure build-up in this line would be apparent from the gauge reading and would indicate that one of the valves was leaking. (OCIMF Cargo Pump Room Sea Valves 4).

Devices should be positioned so that both readings and samples can be taken from a point far enough above the pump room lower platform level that there is no possibility of human exposure to gas concentrations which may accumulate below the floor plates. (OCIMF Cargo Pump Room Sea Valves 4) (OCIMF Cargo Pump Room Sea Valves 4).

The use of a pressure/vacuum gauge, rather than a pressure-only gauge, is preferable in that it will provide a reliable indication of a vacuum in the line prior to opening the sea valve for ballasting. (OCIMF Cargo Pump Room Sea Valves 4).

Two valves should be fitted at cargo sea suction, unless the sea suction is blanked or a spool piece to the cargo system has been removed. Care should be taken that test pressures do not exceed 3.5.kg/cm².

6.14 Are bilge water and cargo slops handled in accordance with MARPOL or in accordance with the requirements of the local authorities?

Receipts should be retained, accounting for the disposal of cargo slops and engine residues to either barge or shore reception facilities. EPA's Vessel General Permit in Effect February 6, 2009

6.15 Are the machinery spaces free of unauthorized overboard discharges and any evidence that unlawful oil discharge has taken place?

In cases where an Oil Record Book is not used or practical, measures should be taken to prevent the mis-operation of equipment, such as the oily water separator. These measures could include positive locking such as a breakable numbered seal on overboard discharge valves combined with a controlled log to document seal use.

6.16 Are receipts maintained for each disposal of garbage?

Certificates may not always be provided where vessels are trading inland. However records should indicate the dates when disposals occurred, and of the quantity and nature of the garbage disposed.

6.17 Are sampling connections, valves, caps or plugs properly secured to pipeline drains and vents?

6.18 Are sampling connections, valves, caps or plugs in satisfactory condition?

Inspector should check to ensure that sampling connections, valves, caps or plugs are properly secured to pipeline drains and vents.

6.19 If an oil discharge monitoring system is fitted, is it in good order and is there evidence of recent testing?

6.99 Additional comments

Chapter 7 – Structure

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

The hull should be free of significant damage, indentations, oil staining, extensive coating breakdown and excessive marine growth. Hull markings should be legible and correctly placed.

7.2 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 over-pressurization, collision contact or distortion from heavy weather.

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

Particular attention should be paid to where the super structure attaches to the deck.

7.4 If any cargo, ballast tanks or voids were inspected or sighted from the deck, were they in a satisfactory condition?

If the internals of a tank, or tanks, were sighted from the deck, record this fact in the comments and list the findings as appropriate. Regardless of whether tank entry is made, the opportunity should be taken where possible to sight from the deck the internal condition of at least two compartments and the forepeak. Valuable indications as to the condition of compartments such as ballast tanks, access trunks and peak tanks can be made from a visual inspection from the outside. Indications of conditions can be wastage of handrails and ladder rungs, visible corrosion, coating breakdown on vertical and horizontal framing, knife-edges on brackets, visible cracking and deformations of bulkheads or frames. Leakage from adjacent tanks or valve glands may be indicated by an oil sheen on the ballast, the presence of gas or the sound of falling liquid. Any deficiencies should be fully described in your observation.

7.99 Additional comments

Chapter 8 – Cargo handling

General cargo handling

- 8.1 Is the vessel provided with company policy statements, instructions and procedures with regard to safe cargo operations?**

This can be found in The Oil Transfer Procedures

- 8.2 Has a Ship/Shore Safety Check List (SSSCL) or Declaration of Inspection (DOI) been properly completed and have those items that require reinspection, been inspected at the appropriate intervals?**

The SSSCL should contain at least those questions as provided in ISGOTT. In the USA, either ISGOTT or the Declaration of Inspection (DOI) may be used. Copies of the SSSCL or DOI should be retained on board for a period of at least 30 days.

- 8.3 Have written loading, discharge or ballast transfer plans, as appropriate, been prepared for the current operations?**

Cargo transfer procedures must include precautions against exceeding permissible hull stresses. Personnel must be aware of trim and list limitations. In the USA, a graph or table should be provided showing the liquid transfer rate versus pressure drop for each product approved for marine vapor return loading on the Certificate of inspection. A system should be in place to undertake visual checks for hull leaks and presence of oil in spill trays and other spaces prior to departure.

- 8.4 If the cargo is required to be inhibited, is the required information available?**

- 8.5 Are legible and up to date pipeline and/or mimic diagrams of the cargo system, inert gas system and venting system available?**

- 8.6 Is information readily available to the responsible persons relating to maximum loading rates and venting capacities?**

Personnel should be aware of all limitations associated with cargo loading.

- 8.7 Is the Cargo Record Book correctly completed and up to date?**

- 8.8 Are the cargoes being carried listed on the Certificate of Fitness, COI and/or Cargo Authority Attachment?**

In the US, a Cargo Authority Attachment may be issued along with the Certificate of Inspection. Verification of cargo or cargo category can be accomplished on this Attachment.

- 8.9 Is there a Procedures and Arrangements Manual available?**

- 8.10 Are the responsible persons familiar with the carriage requirements for the cargoes on board in general?**

Verify Tankerman PIC credential and general cargo knowledge.

- 8.11 If the cargoes being carried are not listed on the Certificate of Fitness, are these cargoes loaded with the approval of a competent authority?**

- 8.12 Are the dangers associated with co-mingling non-compatible cargoes in slop tanks and drip trays considered?**

- 8.13 Are safe and effective procedures in place for the effective stripping (final draining) of tanks at the end of cargo discharge?**

- 8.14 Are safe and effective procedures in place for changing cargo grades?**

- 8.15 If applicable, are safe and effective procedures in place for ballasting and de-ballasting?**
These records will normally not be found on board, but retained with the vessel Operator.
- 8.16 Are safe and effective procedures in place for vessel to vessel cargo transfer operations?**
Procedures should follow the recommendations of the OCIMF/ICS STS Transfer Guide. If the vessel is equipped with specialized equipment for regular ship-to-ship transfer operations such as fenders and hoses, the fact should be recorded in Other comments.
- 8.17 If fitted, is the general condition of the cargo tank heating system satisfactory?**
In the USA, a Hot Oil Operations Manual must be provided. Condensate drains should be piped to containment or securely plugged.
- 8.18 If applicable are procedures in place for gas freeing?**
These records will normally not be found on board, but retained with the vessel Operator.
- 8.19 As applicable, are cargo pumps, booster pumps, ballast pumps and stripping pumps, eductors and their associated instrumentation and controls in satisfactory operational condition, free of leaks?**
Certificates for all cargo pump pressure relief valves should be provided.
- 8.20 Have satisfactory column/cofferdam purging routines been established where deep well pumps are fitted?**
- 8.21 Are tank domes and associated fittings in a satisfactory condition and free from leaks and corrosion?**
- 8.22 If fitted, is the Emergency Shut-Down (ESD) System fully operational?**
The emergency shutdown referenced here will shut down the prime mover (engine) that powers the cargo pump(s). The device should shut the prime mover down completely when actuated. In some instances, for example during active cargo transfer, testing the ESD would not be prudent. If this is the case, verify that the ESD is being tested regularly and was tested prior to the commencement of the current transfer operation. If this can be established, note this in your observation and as Not Seen
- 8.23 If fitted, are powered valves set to close within 20-30 seconds?**
- 8.24 Is an emergency discharge method available?**
- 8.25 If so required, are static electricity precautions being observed?**
Adherence to the latest ISGOTT or industry guidance addressing Static Electricity should be made.
- 8.26 If the vessel is equipped with derricks or hose handling booms, are they in satisfactory condition, marked with Safe Working Load?**
Testing should be made in accordance with local, national or international regulations and valid certificates and records of maintenance should be on board. In the USA, such testing should be in accordance with 46 CFR.
- 8.27 Are cargo pipelines in satisfactory condition and tested annually?**
Visual inspection for soft patches or temporary repairs also corrosion, wastage, blisters and leaks. Note any corrosion or coating failure by % Cargo pipelines should be free of soft patches or other temporary repairs. Inspector should check to ensure valves, caps or plugs are secure. Details of the Test Pressure, the Maximum Allowable Working Pressure (MAWP) and the date of the test should be recorded and pipelines marked. Copy of pressure test should be on board. Pressure testing should be a hydrostatic test, pressure testing using compressed air or inert gas is not acceptable.
- 8.28 If multiple cargoes are being handled, are signs placed at each cargo manifold, identifying the grade of cargo?**
- 8.29 If the barge is involved in Tandem cargo operations, are adequate procedures available?**

8.30 If the vessel uses its own cargo hoses, are they in good order, pressure tested annually to their design working pressure, and is a record of all hose tests and inspections maintained on board?

The actual condition of the portable hoses should be assessed and an observation recorded if visible deterioration, damage or breakdown is observed.

8.31 Is the cargo system, including fittings on the tank domes, free of leaks?

8.32 If refrigerated cargoes are carried, is a means of hydrate control provided, and is a supply of freezing depressant maintained onboard?

LPG cargoes may be dosed with a freezing depressant such as methanol or ethanol under instructions from the shipper. Use of methanol must not be made in chemical gas cargoes (Diethyl ether, Ethylene oxide/Propylene oxide mixtures with an E-o content of not more than 30%, Isoprene, Isopropylamine, Monoethylamine, Pentanes, Pentene, Propylene oxide, Vinyl ethyl ether and Vinylidene chloride). Because of the sensitivity of many cargoes to hydrate control products, the use of hydrate control must be strictly in accordance with the instructions of the shipper/charterer. There may be alternative ways of providing hydrate control other than by the use of anti-freeze compounds. Carriage of methanol is prohibited by some administrations. In the case of ethylene and LNG, in addition to causing contamination, methanol cannot be used as it freezes at - 87 degrees C

8.33 Where fitted, is cargo tank insulation reported to be in good condition?

8.34 Are sample lines for both liquid and vapor provided and are they fitted with valves and caps?

8.35 Is low temperature pipework adequately insulated from the hull structure?

8.36 If any cargo or vapor lines are insulated, is the insulation in a satisfactory condition?

8.37 Where cargo or vapor lines are isolated from the structure, are joints electrically bonded?

8.38 Are cargo and vapor line expansion arrangements in a satisfactory condition?

8.39 Are liquid and vapor lines free to move inside their clamps?

8.40 If pipeline drains are fitted, are they provided with valves and caps, and are they in a satisfactory condition?

8.41 If fitted, are relief valves to the cargo pipeline system in good working order?

Check documentation for last test date. Valve may be tagged(stamped) with last test date. Verify seal has not been tampered with

8.42 Are manifolds in satisfactory condition?

Properly supported, free of corrosion and wastage, and maintained.

8.43 If cargo segregations using blank flanges are fitted, are the flanges fully bolted?

8.44 Are the correct product-related packings and gaskets used for every cargo transfer?

8.45 Are the valves serving the cargo and ballast system in satisfactory operational condition?

The operational condition of the valves should be determined if possible. If the vessel is idle conduct a visual inspection of the valves and note any deficiencies. If no deficiencies are noted, mark the question YES. PIC should be interviewed regarding the condition of valves if the barge is in operation.

8.46 Is the vessel free from unauthorized connections between the bunker, ballast and cargo systems?

8.47 If fitted are the cargo pump temperature sensors operating properly?

8.48 Are operational pressure gauges fitted at the cargo manifolds?

8.49 Where fitted, are remote and local, temperature and pressure sensors and gauges in satisfactory operational condition?

- 8.50 Is there recorded evidence of regular testing for key cargo instrumentation, including temperature and pressure gauges?**

Cargo Compressor and Motor Rooms

- 8.51 Is the cargo conditioning (reliequfaction) plant and associated machinery and instrumentation in good order?**

- 8.52 Is the compressor room well lit; are the light fittings suitable for use in gas-hazardous areas and are they in a satisfactory condition?**

The compressor room should be free of gas leaks and the ventilation system should be maintaining negative pressure. The compressor and motor rooms should be clean and free of combustible materials. Bulkhead seals between the compressor room and the motor room should be gas tight and well lubricated.

- 8.53 Is the motor room access system maintaining a positive pressure and is it operating satisfactorily?**

- 8.54 If the motor room access is located in a gas-hazardous area, is it provided with an air-lock suitably alarmed to warn if both doors are opened at the same time?**

In such cases, an air-lock suitably alarmed to warn if both doors are opened at the same time should be fitted. Airlocks and alarms should be in good order. If pressure in the air-lock is lost, the system should shut down.

- 8.55 Is the gas detection equipment in a satisfactory condition?**

- 8.56 Are fixed gas detection sample points fitted at the appropriate levels for the cargo being carried?**

- 8.57 Are cargo compressors isolated from the cargo when carrying Propylene Oxide?**

Void Spaces and Seals: Type “C” Tanks

- 8.58 Are void space seals, where fitted, in a satisfactory condition?**

- 8.59 Is the environmental control of void spaces satisfactory?**

- 8.60 Are relief valves for void spaces, if fitted, in good order?**

Void and interbarrier spaces and seals. Other cargo tank types

- 8.61 Is the oxygen and hydrocarbon content of the interbarrier spaces regularly monitored and are the results recorded?**

- 8.62 Is the interbarrier space nitrogen purging system in good order?**

- 8.63 Is the pressure in the interbarrier spaces being maintained at a sufficient level to prevent ingress from the external atmosphere?**

- 8.64 Are the relief valves for the hold spaces and primary and secondary barriers in satisfactory condition?**

Relief valves should be tested at intervals of not more than 24 months

- 8.65 If a cargo heating system is fitted, is it properly insulated, in a satisfactory operational condition and free of leaks?**

Where steam cargo heating systems are fitted and when a heated cargo is being carried at the time of the inspection, an indication of the condition of the heating coils can be provided by inspection of the hot well or observation tank. A very small amount of oil (a few drops) on the surface of hot wells or observation tanks can be considered normal, but a layer of oil over the surface indicates that there is a problem of some significance. In the case of thermal heating systems, piping should be sound, pumps, joints and glands should be free of leaks and the heater unit should be in satisfactory condition. Where parts can be isolated, procedures should be in place to identify and record which part is isolated.

- 8.66 If diesel engines are installed on the open deck, are these certificated and approved by a recognized authority and situated outside the gas-hazardous area?**

Diesel engines must not lie within a hazardous area. USA rules governing tank barge carrying flammable cargoes define the hazardous area as extending 10 feet around any non welded opening into a cargo space or attached piping. This includes tank domes, ullage openings, tank cleaning covers, and any flanges, valves, pump seals, etc. in the attached cargo or vent piping. If the engine is enclosed in a watertight house, any openings into this house must be outside of the hazardous area, but the engine itself could be located within the hazardous area. There is no specific requirement on the height of the engine above the deck.

- 8.67 Are tank access openings, flame screens and standpipes in satisfactory condition?**

Cargo Measurement

- 8.68 Are tank calibration tables available and approved by a cargo inspection organization**

The tank calibration tables on dumb barges may not have an approved letter from cargo inspection organizations

- 8.69 Are cargo tank and/or other gauging points clearly identified?**

- 8.70 If fixed cargo measuring equipment is fitted, is it operational?**

Check for calibration record information

- 8.71 Are cargo tanks provided with an overfill protection system (High Level Alarms)?**

The means of checking correct operation of the high level alarms should be noted.

- 8.73.2 Is overfill protection system (High Level Alarms) fully operational?**

- 8.72 If fitted, is the cargo high level alarm system used during the cargo transfer observed?**

- 8.73 If fitted, is the cargo tank overfill alarm system independent of both the gauging devices and the high-level alarm system?**

The tank level gauging system and the overfill alarm systems must be independent and driven by separate mechanisms.

- 8.74 Are bunker tanks provided with an overfill protection system (High Level Alarms) and is the system fully operational?**

Bunker tanks which have only means of overflowing into overflow tank and the overflow tank is fitted with a high level alarm, should be considered as bunker tank high level alarm.

- 8.75 Are personnel aware of the relationship between tank filling limits and cargo temperature?**

- 8.76 Are portable measuring devices available and in a satisfactory condition?**

If fitted, portable gauging devices should be in a satisfactory operational condition. Portable gauging such as ullage sticks, fabric or steel tapes may be the alternative method of measurement. In such cases, personnel should be aware of the dangers from associated electrostatic hazards. Are they properly calibrated and is there a sufficient number of devices to meet the needs of the transfer?

- 8.77 If fixed tank gauges are not fitted, are sufficient portable tapes provided to simultaneously gauge each tank being worked?**

- 8.78 Are vapor locks, where fitted, calibrated and certified by a recognized cargo inspection organization?**

Confirm that calibration (strapping) tables are calibrated for use with portable measuring devices

8.79 If slip tubes are fitted, are they used only in emergencies?

Slip tubes are generally used only in cases of emergency. A small amount of cargo vapor or liquid is released during level measurement, therefore they are a restricted type of gauging device and must not be used when toxic cargoes are carried, and in the case of flammable cargoes, only if permitted by the terminal and the charterer. If slip tubes are the only method of gauging, record the fact as an observation.

8.80 Is a reference thermometer carried and is its certificate valid?

Local thermometers should be checked at regular intervals and records kept.

8.81 If a flow meter is fitted, is it operational and calibrated in accordance with the requirements of the approving authority?

Flow meters may frequently be found on small vessels and barges. If flow meter(s) is/are fitted, records attesting to the proving and calibration of the instrument(s) should be provided. These records should name the certifying authority and record the dates when proving and calibration was conducted.

8.82 Is the responsible person in charge familiar with the term 'reference temperature', and has it been determined for this cargo?

Venting and Inert Gas Systems

8.83 If the vessel is fitted with a cargo venting system, is it in a satisfactory operational condition?

If a venting system is fitted, it must be in a satisfactory condition and operated correctly. If high velocity vents are fitted, these should be maintained and operated as designed and not jacked open. If the vessel is provided with a venting system that uses a common line shared by other cargo tanks, means should be provided to prevent vapor carryover in the event that the vessel is carrying dissimilar cargo grades. Operational condition of pressure relief valves should be checked when possible, this should be done by barge crew only. Flame screens should be in serviceable condition. If the barge is idle and a complete inspection of the venting system yields no observations the question can be answered YES.

8.84 If applicable, Is the vessel capable of operating in a closed condition?

The ventilation of cargo tanks is dependant on vessel design, products carried and local regulations. Cargo tanks can operate (load and discharge) under totally closed conditions (preferred) through a designated venting system. Where no system is fitted, ventilation may be through sighting or ullage ports provided they are fitted with permanent flame screens.

8.85 If applicable, Is the vessel handling volatile or toxic cargoes in a closed condition?

Notes: A volatile product is petroleum having a flash point below 140F / 60C as determined by the closed cup method of testing. If a cargo is being handled at a temperature within 50F / 10C of its flashpoint, it should be considered volatile. Therefore a cargo with a flashpoint of 176F / 80C should be considered volatile if handled at a temperature of 158F / 70C or above.

8.86 Are the P/V valves in good order, fitted with flame screens, inspected and cleaned as part of a regular maintenance routine?

Maintenance records may not be found on board, but retained with the vessel Operator. The inspector should look for physical evidence of regular maintenance.

8.87 If cargo tank stop valves are fitted which permit the isolation of individual tanks from the venting system, are these provided with positive locking arrangements?

Seals may be acceptable in lieu of locks.

8.88 If cargo tank stop valves are fitted which permit the isolation of individual tanks from the common venting system, are the individual cargo tanks provided with two means of full flow relief of vapor, air or inert gas mixtures to prevent over-pressure or under-pressure?

Class societies may accept a system that may not comply with the SOLAS requirements for 'Secondary means of full flow relief'. In such cases the question should be answered No. A full description of the system as fitted should be made as an Observation to allow an assessment of acceptability to be made (see below for full guidance notes). A secondary means of full flow relief of vapour, air or inert gas mixtures shall be provided to prevent over-pressure or under-pressure in the event of failure of the primary venting arrangements. Alternatively, pressure sensors may be fitted in each tank protected by the primary venting arrangement with a monitoring system in the cargo control room or the position from which cargo operations are normally carried out. Such monitoring equipment shall also provide an alarm facility which is activated by detection of over-pressure or under-pressure conditions within a tank. (SOLAS II-2/11.6.3.2)

Vessels equipped with vapour collection systems must be fitted with a pressure sensing device that senses the pressure in the main vapour collection line, which:

- (a) Has a pressure indicator located on the vessel where the cargo transfer is controlled; and*
- (b) Has a high pressure and a low pressure alarm that:
 - (1) Is audible and visible on the vessel where cargo transfer is controlled;*
 - (2) Alarms at a high pressure of not more than 90 percent of the lowest pressure relief valve setting in the cargo tank venting system; and*
 - (3) Alarms at a low pressure of not less than four inches water gauge (0.144 psig) for an inerted tankship, or the lowest vacuum relief valve setting in the cargo tank venting system for a non-inerted tankship. (CFR 46 39.20-13)**

If the vessel is described in the IOPPC Form B 1.11.4 as a Crude oil/Product carrier and carries crude and products simultaneously, the IG/Vent isolation valve will be intentionally closed to prevent vapour carryover. In such cases, both primary and secondary protection must be provided on the cargo tank side of the cargo tank IG/Vent isolation valve.

In the case of inerted vessels, if pressure sensors are provided as the means of secondary protection, the alarm settings for the pressure sensors must be set to actuate when the tank pressure reaches 10% greater than the normal actuation settings of the pressure valves themselves. In the case of the low-pressure settings, the pressure in a tank should never be permitted to fall below zero and the pressure sensors should be set to alarm above zero.

In the case of non-inerted vessels if pressure sensors are provided, the over-pressure setting should be set to alarm at 10% greater than the normal actuation settings of the pressure valves, and at a vacuum 10% greater than the normal actuation settings of the vacuum valves.

In all cases, a description of the secondary venting arrangements should be provided, in particular what vents or pressure/vacuum sensing systems are available on each tank when the main inlet valve to IG/vent main is shut. Where electronic pressure/vacuum sensors are provided, identify and record whether the alarms are set to operate at the correct value or some other value.

8.89 If an inert gas system is fitted, and is in use, is it operating satisfactorily?

The Inert Gas System including instrumentation, alarms, trips, pressure and oxygen recorders should be operational

8.90 If the inert gas system is in use, is it operating satisfactorily?

The Inert Gas System including instrumentation, alarms, trips, pressure and oxygen recorders should be operational.

8.91 If fitted, are nitrogen cylinders and associated pipework in a satisfactory condition?

8.92 If the vessel is equipped with a vapor-return system, is it operational?

In the USA, a certificate of Vapor tightness shall be provided if the vessel is operating a vapor return system.

8.93 Do tank hatches, tank cleaning apertures and sighting ports appear to be liquid and gas tight?

In the USA a certificate of Vapor tightness shall be provided.

8.94 Is a log kept of inert gas operations?

8.95 Are records maintained of equipment maintenance, including the overhaul of the non-return valve?

A non-return valve or equivalent shall be fitted forward of the deck water seal, provided with positive means of closure. As an alternative to positive means of closure, an additional valve having such means of closure may be provided forward of the non-return valve to isolate the deck water seal from the inert gas main.

8.96 Is an operator's policy provided that complies with IMO guidelines in case of failure of the inert gas system?

In the event that the inert gas system is unable to meet operational requirements of this regulation and it has been assessed that it is impracticable to effect a repair, then cargo discharge, deballasting and necessary tank cleaning shall only be resumed when the emergency conditions laid down in the 'IMO Guidelines on Inert Gas Systems' are complied with. In brief, these guidelines state that; 1) In the case of tankers engaged in the carriage of crude oil, it is essential that the tanks be maintained in the inerted condition to avoid the danger of pyrophoric iron sulphide ignition. If it is assessed that the tanks cannot be maintained in an inerted condition before the inert gas system can be repaired, an external supply of inert gas should be connected to the system to avoid air being drawn into the cargo tanks. (IMO Inert Gas Systems 8.2) 2) In the case of the carriage of products, if it is considered totally impracticable to effect repair of the inert gas system, cargo discharge may only be resumed if an external supply of inert gas is connected, or the following precautions are taken: That approved devices, or flame screens, to prevent the passage of flame into cargo tanks are fitted and checked to ensure that they are in good order; The valves on the mast risers are opened; No free fall of water or slops is permitted; and No dipping, ullaging, sampling or other equipment should be introduced into the tank until a period of five hours since injection of inert gas ceased. If essential for the safety of the operation, this should be done only after 30 minutes have elapsed and all metal components should be securely earthed. (IMO Inert Gas Systems 8.3). Do the master, chief officer and the officers standing cargo watches understand this?

8.97 Is the oxygen content of the inert gas delivery at or below the permitted maximum?

Record if the oxygen delivery is more than 5% or if a high oxygen level alarm is not fitted.

8.98 Are the vapor spaces in the cargo tanks being maintained at positive pressure?

8.99 Was the fixed oxygen analyzer calibrated immediately prior to use of the inert gas system?

8.100 Where fitted, do the readings on the local, bridge and cargo control room oxygen and pressure recorders agree?

Instrumentation shall be fitted for continuously indicating and permanently recording when inert gas is being supplied: The pressure of the inert gas supply forward of the non-return devices; and The oxygen content of the inert gas in the inert gas supply mains on the discharge side of the gas blowers. (FSS Code 15.2.4.2.1) The devices referred to above shall be placed in the cargo control room. But where no cargo control room is provided, they shall be placed in a position easily accessible to the officer in charge of cargo operations. (FSS Code 15.2.4.2.2) In addition, meters shall be fitted: In the navigation bridge to indicate at all times the pressure of the inert gas main forward of the non-return devices; In the machinery control room or in the machinery space to indicate the oxygen content of the inert gas in the inert gas supply mains on the discharge side of the gas blowers. (FSS Code 15.2.4.2.3)

8.101 If fitted, is the liquid level in the deck seal correct and clearly visible?

Notes: The OCIMF paper on inert gas deck seals recommends that a dry-type deck seal is best replaced with one of another type. Normally with a dry type seal there is a dump valve which should open when the inert gas supply is stopped and which allows the water from the upper tank to drain to the lower, thereby creating a seal. The crew should be requested to stop the inert gas momentarily (which will not affect cargo operations), to see if this process actually takes place. Upon restoring the supply, the dump valve should close and the upper tank filling and lower tank drain valves open.

8.102 If fitted, does the P/V breaker appear to be in good order?

8.103 Are Pressure Relief Valves Fitted to each cargo tank?

Record number of relief valves on each tank and the pressure setting and last test date for each relief valve. Note: if multiple relief valves are fitted on one tank nozzle a diverter must be employed.

8.104 Are relief valves fitted to the vapor pipeline system?

Record pressure setting and last test date for each relief valve. Valve may be tagged(stamped) with last test date. Verify relief valve seal is intact.

8.105 Is the barge equipped with an Inert Gas or Nitrogen Generator?

If Yes what is the capacity of the IGS/Nitrogen generator in Cu Meters/Hour. If not equipped with IGS then should be answered NA

8.199 Additional comments

Chapter 9 – Mooring

9.1 Is the vessel effectively moored?

Generally mooring lines of the same size and type (material) should be used for all leads. Mooring lines should be arranged so that all lines in the same service are about the same length between the ship and the shore bollard. (MEG 1.5)

The mooring arrangement in use for the port and its effectiveness should be reviewed. Breast lines provide the bulk of transverse restraint, back springs the longitudinal. Headlines and stern lines contribute much less to the mooring strength than is commonly supposed.

9.2 Are pedestal fairleads, roller fairleads, and other mooring system rollers well greased and free to turn, and are bits and chocks free of grooving?

Rollers should be free to turn and evidence of rope, wire or corrosion noted. Inspectors should note whether the design of the fairlead is suitable for the vessel and its trade. Evidence of wasting due to corrosion should be noted. Typical design features of both barges and small bunker vessels are open fairleads. This design can lead to moorings leading upwards and jumping out of the leads. This problem is particularly evident where small vessels may lie alongside larger ships for bunkering and also in areas of a large tidal range. Dumb barges and some small bunker type barges may not be fitted with powered winches or anchoring systems, therefore particular attention should be paid to the effectiveness of moorings and condition of equipment.

9.3 Are auxiliary mooring equipment, rollers, chocks and fairleads in a satisfactory condition?

Rollers should be free to turn and evidence of rope, wire or corrosion noted. Inspectors should note whether the design of the fairlead is suitable for the vessel and its trade. Evidence of wasting due to corrosion should be noted. Typical design features of both barges and small bunker vessels are open fairleads. This design can lead to moorings leading upwards and jumping out of the leads. This problem is particularly evident where small vessels may lie alongside larger ships for bunkering and also in areas of a large tidal range. Dumb barges and some small bunker type barges may not be fitted with powered winches or anchoring systems, therefore particular attention should be paid to the effectiveness of moorings and condition of equipment.

9.4 If fitted, are the winches that are employed for mooring in a satisfactory condition?

9.5 Do personnel demonstrate evidence of being properly trained to moor the vessel correctly?

Generally mooring lines of the same size and type (material) should be used for all leads. Mooring lines should be arranged so that all lines in the same service are about the same length between the ship and the shore bollard. (MEG 1.5)

The mooring arrangement in use for the port and its effectiveness should be reviewed. Breast lines provide the bulk of transverse restraint, back springs the longitudinal. Headlines and stern lines contribute much less to the mooring strength than is commonly supposed.

9.6 Are the mooring lines in satisfactory condition?

A policy should be in place to control the use and replacement of mooring lines. The inspector should assess the effectiveness of the policy. Mooring line certificates may be retained by the Operator.

9.7 If synthetic tails are used in conjunction with wires, are they in satisfactory condition and is a suitable joining shackle used between the wire and the tail?

Connecting links are usually either Tonsberg, Mandal or Boss shackles. Tonsberg have a straight pin and the tail should be connected to it; Mandal has a curved roller and the wire should be connected to it; Boss shackles are available in both versions and the same rules apply.

9.8 If fitted, are windlasses, anchors, locking bars and cables in satisfactory condition and operating effectively?

The condition of the locking bars should be checked to ascertain that they function correctly by locking the chain when the vessel is at anchor to prevent the brake having to take the full load of the cable.

9.9 If one or more bow stoppers are fitted, is there a certificate attesting to the safe working load?

9.10 Are mooring lines secured to bitts and turned up correctly?

The recommended method of turning a rope up on bitts is to take one or two full turns around the leading post before 'figure-of-eighting'. The reason for this is to reduce the tendency to pull the two posts together. (MEG 8.2)

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

9.11 Are all powered mooring lines correctly reeled on drums?

Notes: Because of design changes by winch manufacturers, previous guidance used to determine the correct reeling direction of mooring lines on winch drums - that the fixed end of the brake band is under tension - is not valid in all cases. The reeling arrangements of mooring lines on winch drums should be examined to ensure that these are in accordance with the manufacturer's design requirements. Each arrangement should be assessed on a case-by-case basis. 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 to close together. (OCIMF Information Paper -Winch brake bands design considerations impacting on reeling direction.)

9.12 Are all powered mooring lines secured on brakes and are the winches out of gear?

9.13 If fitted, on split drum winches are all the lines made fast with no more than one layer on each tension side of the drum?

More than one layer increases the effective lever and reduces the brake holding capacity. (meg 7.5.1)

9.14 Are all mooring lines stowed neatly to minimize tripping hazards and are mooring areas clear and unobstructed?

9.15 If fitted, do mooring winch foundations appear to be in a satisfactory condition?

9.16 Do brake linings, drums and pins appear to be in good order?

Defective brake gear is often evident, particularly on older vessels. Check the condition of cheek plates for wastage and distortion, the hinge pins and their retaining devices and the condition of the brake drum below the lining. If there is significant wear on the brake linings, the brake adjustment screw may be at the limit of its travel and further tightening not possible.

9.17 If mooring winches are fitted is a policy in place for the testing of the winch brakes and are the results recorded?

Tests should be conducted annually

9.99 Additional comments

Chapter 10 – Towing and pushing vessels

10.1 Does operator have policy/procedure to determine tow to horsepower ratio is sufficient?

10.2 Is the equipment provided, sufficient to handle the tow?

Towing equipment, winches, hawsers and bridles should be in good condition and comparable with the tugs horsepower. All components of the emergency towing system should be rated with a breaking strength equal to 1.5 times the rate bollard pull of the towing vessel. The breaking strength of the towing wire should be at least 2.5 times the certified or calculated bollard pull of the tug.

10.3 If applicable, do personnel demonstrate evidence of adequate training in towing operations and emergency procedures?

Drills should be in compliance with the Vessel Response Plan.

10.4 If fitted, do personnel demonstrate evidence of effective training and familiarity with the operation of the tow winch?

10.5 Is the funnel provided with an effective spark arrestor?

10.6 Do personnel demonstrate familiarity and adequate training to respond to emergency situations?

10.7 Does the height of eye from the tug wheelhouse provide sufficient visibility beyond the barge being towed or pushed?

10.8 If fitted, is the size and strength of the towing wire employed, adequate for its intended use?

Record the size and strength of the towing wire in use. This would be an emergency Tow wire for an ATB.

10.9 Does minimum breaking load (MBL) of the towing wire size correspond to the maximum bollard pull of the tug?

The minimum breaking load of the towing wire should be 2.5 times the maximum bollard pull of the tug.

10.10 Does the tow wire appear to be in satisfactory condition?

10.11 Are the connections between tugs to barges and between barges being maintained in a satisfactory condition?

Identify type of connecting system being used, and condition of key components.

10.12 Is a manufacturer's certificate provided for the towing wire(s) on board?

Certificates will be provided for towing wires carried on tugs but may not be found on barges

10.13 Is a spare towing wire or hawser on board?

10.14 Is the towing winch in a satisfactory condition and does it show evidence of proper maintenance?

Identify type of winch, single or double drum

10.15 Is the towing winch brake tested?

The towing winch brake tests should be conducted in accordance with the Manufacturer's design parameters.

10.16 If the winch is fitted with an alarm indicating wire pay-out, is this operational?

10.17 If fitted, is a record of inspection of the towing wire maintained; is it up to date and does it contain details of condition and dates of lubrication?

10.18 Is the barge fitted with towing points and a bridle?

10.19 Is the bridle composed of at least Grade 2 stud link chain or IWRC wire?

10.20 If fitted, is the bridle protected from chafing at the deck edge?

- 10.21** If a spare pennant is provided, is it at least the same grade and size of the main bridle.
- 10.22** If fitted, is the synthetic shock line at least 1.3 times the strength of the main tow wire/hawser
- 10.23** Are the bridle ends, tow wire and surge chain connections appropriate for the current service?
- 10.24** Is a record maintained of the number of towing miles/hours of the towing wire, and is this usage within the stipulated life of the wire?
- 10.25** Is the barge fitted with an emergency towing system?
Emergency Towing Wire (ETW) Is installed on the towed object as a spare towing connection in case that the main towing wire will be damaged. To enable the tug to pick up the emergency towing line, a floating ball and a long messenger line is connected to the ETW.
- 10.26** Is the towing wire termination in good condition and free of damage, deformation, or significant corrosion?
- 10.27** Is the towing wire sufficiently protected from chafing at the stern rail for the current service?
Describe chafe gear, pins, hold down, Texas bar, etc.
- 10.28** Is the tug/barge pushing connection acceptable for the current service?
- 10.29** If separate push wires and winches are utilized, are they in satisfactory working order?
- 10.30** Do the two bridle legs form an angle less than 120 degrees?
- 10.31** Is the breaking strain of the bridle at least 1.3 times the breaking strain of the towing wire?
- 10.32** Can the emergency towing system be deployed by the tug personnel when the barge is unmanned?
- 10.33** If the inspected vessel is an articulated tug/barge unit, is the tug/barge connection system maintained in satisfactory condition?
- 10.34** If manned, do the barge personnel maintain 24 hour radio communication with the tug?
- 10.35** If applicable is the connection system capable of being controlled from multiple locations?
List the location(s) where the connection system can be operated and controlled from.
- 10.36** If applicable does the connection device have lightering capabilities without disconnecting from the barge?
While the pins may be not locked, they may be sufficiently extended to remain secured within the notch. There may be rotating heads on the pins that allows the pins to be frictionally connected and sliding up or down the ladders. Please comment on environmental limitations of lightering operations. Record if the ATB uses the lightering mode while underway - what are operational and environmental the limitations.
- 10.37** If fitted does the tug have a towing winch?
Please record the type of towing winch, the manufacturer of the winch
- 10.38** Does the ATB have certificates for all components of the emergency towing arrangement?
Please list the components of the emergency towing arrangements including dimensions and SWL/MBL. This could include a towing winch, an 'H' bitt, towing hawser, shackles, capstan, buoys or hooks and or winch brake test.

10.39 Is the operation of the connection system satisfactory?

If possible, the pin equipment should be cycled for the inspector. Note: The pin equipment should not be cycled during a cargo transfer or if cycling the equipment would in any way effect the stability of the tug or barge

10.40 When was the last ATB connection system emergency drill conducted?

Verify drill matrix includes ATB connection system emergency drills. Inspector should record the frequency of these drills. Inspector should record date of last drill.

10.41 Is the emergency towing system from the ATB tug available for immediate deployment to the ATB barge?

This maybe a deployment system or a positive connection to the main emergency towing line for wire.

10.99 Additional comments

Chapter 11 – Machinery

11.1 Is the general cleanliness and housekeeping in the engine and machinery space satisfactory?

All spaces should be free of leaks from pipework and machinery. In addition, these spaces should be clean and tidy. Deck plates in machinery spaces should be free of any oil residues and be clear of any machinery or equipment that impedes safe access.

11.2 Is a planned maintenance system being followed, and is it up to date?

Evidence should indicate that a planned maintenance system is being conducted.

11.3 Is the engine/machinery space free from visible safety deficiencies?

11.4 Are all electrical wiring and plugs intrinsically safe and megger tested regularly?

11.5 If fitted, is the engine/machinery space adequately lit?

11.6 If the vessel is provided with an emergency diesel generator, is it in satisfactory operational condition?

If an emergency generator is fitted, sufficient fuel should be provided to operate the equipment for at least 18 hours. The emergency generator should be tested at weekly intervals and personnel should be able to satisfactorily demonstrate its use.

11.7 Is the main engine machinery space equipment in a satisfactory operational condition?

11.8 Are the emergency main fuel stops prominently marked and operational?

11.9 If fitted, are the boiler fuel emergency stops operational?

Boiler refers to cargo heating unit

11.10 If fitted, are the 12 volt and 24 volt batteries in satisfactory condition?

11.11 If fitted, is the fire pump in satisfactory condition and operational?

11.12 Is the record available for testing of safety devices and alarms to the main and auxiliary engines?

Verify testing through planned maintenance system records

11.13 Is vessel fitted with a bilge pump or other dewatering capability and are bilge alarms operational?

There must be an installed or portable bilge pump for emergency dewatering. Any portable pump must have sufficient hose length and pumping capability. All installed bilge piping must have a check/foot valve in each bilge suction that prevents unintended backflooding through bilge piping.

11.14 If the vessel has a pump room, is the gas detection system operational?

11.15 If the vessel has a pumproom, are ventilation fan shut-down arrangements operational?

11.16 Is the emergency steering gear operational?

Responsible persons should be familiar with emergency steering gear, and demonstrate operation. Communications with the emergency conning position and the wheelhouse should be checked and instructions posted.

11.17 Are the engine room alarms operational?

11.18 Is the engine room instrumentation in operational condition?

11.19 If a fixed engine room fire extinguishing system is fitted, is it in satisfactory operational condition?

11.20 Is all moving machinery provided with effective guards where this presents a hazard?

Prudent judgment needs to be applied to determine where guards should be fitted.

11.21 Are hazard/warning notices posted?

Signs indicating "No Entry to Unauthorized Persons, No Matches, Lighters, No Smoking, No Naked Lights, No Mobile Phones, No Pagers" should be prominently displayed.

11.22 If fitted, are the emergency escape exits clearly marked, unobstructed and adequately lit?

Spot check that escape hatches work properly. Lighting includes emergency lighting. Photoluminescence signage is optional on non-SOLAS class vessel.

11.23 Are fuel oil tanks, slop tanks and drums clearly labeled?

11.24 Are flammable/combustible materials properly stored?

11.25 Are bilges clean and free of excessive oil waste?

11.26 If fitted, is the oily water separator arrangement and overboard discharge operated correctly?

The overboard discharge valves on the bilge and oily water separator system must be closed and secured (lock/lashed) with a notice posted, warning against opening without proper authority.

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

Class rules require a minimum insulation resistance of 1 megohm (1 million ohms). Good practice suggests that a much higher standard, as near to infinity as possible, but not less than 5 megohms, should be aimed for.

11.28 Is the condition of the steering compartment satisfactory?

11.29 Is the operation of the steering equipment satisfactory?

All components of the steering gear should be in a satisfactory condition and operable.

11.30 Is the engine room emergency equipment in fully operational condition and are operating instructions clearly displayed?

Responsible persons should be familiar with, in particular, the operation of the fixed fire fighting systems, the main and emergency fire pumps, the emergency steering gear, oxygen resuscitation equipment, and the donning and use of breathing apparatus.

11.31 Are Nonconductive mats or grating provided on the deck in front of each switchboard?

Nonconductive mats or grating must be provided on the deck in front of each switchboard and, if it is accessible from the rear, on the deck behind the switchboard.

11.32 Are the fire main, fire pump, and sea chest valves clearly marked and labeled?

11.33 Are main switchboards protected against water spray?

11.34 Are all electric panels, switchboards and associated components clearly labeled.

11.35 Are detailed bunker transfer procedures available?

Bunker transfers over 10,500 gallons require transfer procedures.

Notes: All bunkering operations should be carefully planned and executed. Pollution caused when heavy fuel oil is spilt is particularly damaging and difficult to clean up. Personnel involved in the bunkering operation onboard should have no other tasks and should remain at their workstations during topping off. This is particularly important when bunkers are being loaded concurrent with cargo operations, so that conflicts of interest for operational personnel are avoided. Planning of bunkering operations should include the following:

- *Determining that there is adequate space for the volume of bunkers to be loaded*
- *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 if fitted;
- Verification of gauging system operation and accuracy;
- Alarm settings on overfill alarm units if fitted;
- Communication with the terminal to establish when bunkering can be undertaken;
- Methods of managing the handling of bunkers which have or may have a H₂S content and testing procedures for determining the presence of hydrocarbon or H₂S vapours;
- Method of determining the temperature of the bunkers during loading;
- Communications procedure for the operation, including emergency stop;
- Changing over tanks during loading;
- Containment arrangements and cleanup equipment to be available;
- Manning requirement to execute the operation safely.

Ship's personnel should always be alert to the possible presence of H₂S in bunker fuel. It is preferable that a diagram of the fuel oil transfer piping be attached to the plan.

11.36 Is the connection system free of modifications since delivery of the vessel?

Record the nature of the modifications who completed the modifications.

11.37 Is the pinning connection and associated machinery included in the planned maintenance system?

Maintenance records could include grease consumption, hydraulic/pneumatic pressure readings, wear pad replacements, oil changes etc... Deck and engine records should include all repairs to the system.

11.38 Is the towing package included in the maintenance system?

This should include the capstan, winch, lubrication of wire, records of running hours for tow wire, inspection of emergency towing hawser and pickup arrangements, retiring age of towing hawser, winch brake test dates.

11.39 Is the vessel provided with adequate 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.

11.40 Has the chief engineer written his own standing orders and are night orders being completed?

Notes: Standing order and night order books should be checked to ascertain that all officers are instructed as to their responsibilities. Standing orders should be written by the chief engineer to reflect the specific operator's requirements, as well as his own, particular to the vessel, the trade and the experience of the engineering officers aboard at the time. It should be updated and signed by each chief engineer as they join the vessel. Night orders should be written as and when they are required to supplement the standing orders.

11.41 Is the engine room log book adequately maintained?

Note: The vessel's SMS system should indicate which fields are required to be completed. When a vessel is operating in the UMS mode, the times when the vessel is UMS should be recorded. Details of bunkering operations and major internal oil transfers should also be recorded. The Chief engineer should sign the log book on a daily basis.

11.42 Is there a procedure to restart critical equipment?

Note: A written procedure should be readily available within the engine room which should be specific to the particular ship in order to identify relevant controls. The procedure should include the following guidance, where applicable, on how to:

- *Regain power from the emergency to the main switchboard;*
- *Charge the air receivers for the main diesel generators in order to provide electrical power to all auxiliaries (fuel and lubricating oil pumps and the boiler supply);*
- *Restart all auxiliaries;*
- *Restart the main engine and boiler.*

11.43 Are engine room emergency stops for ventilation fans provided, clearly marked and do records indicate that they have been regularly tested?

Means must be provided for stopping each fan in a ventilation system serving machinery spaces and for closing, in case of fire, each doorway, ventilator, and annular space around funnels and other openings into such spaces.

Operator should have guidelines on maintenance, testing and inspection of ventilation fans.

11.44 Are purifier rooms and fuel and lubricating oil handling areas 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.

11.45 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 program and the frequency of testing (i.e. fuel oils, main engine lube oils, hydraulic oils etc.) verify the latest lube oil samples analysis is free from deficiencies. Deficiencies (if any) and corrective actions should be recorded.

11.46 If fitted, are the connection system warning and failure alarms understood by all officers?

Officers should be familiar with the connection system warning/failure alarms and actions to be taken. Drills, training and or familiarization should be included in the vessel's operations manual/SMS. Connection systems alarms can include but not limited to low pressure, high temperatures, low oil levels, bushing temperature.

11.47 Is lubricating grease used on the external connection components?

Inspector to sight grease type (biodegradable, environmentally friendly or other).

11.99 Additional comments

Chapter 12. General appearance

12.1 Is the general condition and cleanliness of the hull satisfactory?

The hull should be free of significant damage, indentations, oil staining, extensive coating breakdown and excessive marine growth. Hull markings, should be legible and correctly placed. Draft marks, load line, watertight doors and emergency exits as applicable to be marked as per Title 46, Chapter I, Sub-M, Part 144.160.

12.2 If fendering is fitted is it in a satisfactory condition?

Small vessels are often fitted with permanent fendering in the form of steel round bar, wood or rubber straking. These areas are subject to heavy impact and are therefore prone to corrosion, heavy indentation and puncture. Inspectors should pay close attention.

12.3 Does the structural appearance and cleanliness of the weather deck appear to be satisfactory?

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

12.4 Is the general condition of service pipework satisfactory, is it free from significant corrosion, pitting, soft patches or other temporary repairs?

Hydraulic, fire mains, deck steam lines, compressed air lines and tank cleaning lines should be examined, particularly on the underside, for external indications of corrosion, and for patching or accelerated wear caused by rope abrasion. Pipe securing arrangements should be intact and permit free movement of the pipes as necessary.

12.5 Does the overall appearance of the superstructure appear to be satisfactory?

12.6 Does the internal appearance of the superstructure appear to be satisfactory?

Deck houses for pumps and accommodation spaces

12.7 Does the internal appearance of the machinery compartment appear to be satisfactory?

12.99 Additional comments

Chapter 13 – Packed cargo

13.1 Does the vessel have a cargo securing manual?

13.2 Is the vessel free of stability problems?

Vessels used for the transportation of packed cargoes or containers may not be purposely designed to carry them. Inspectors should pay particular attention to the vessels stability criteria to determine the suitability to carry deck cargoes or if appropriate, tank trucks.

13.3 Does the vessel have a stability plan approved by a competent authority to carry deck cargoes?

Look for evidence that stability calculations are being done

13.4 the portable tank and framework certified for the carriage of product by a competent authority?

13.5 If fitted, have portable tanks undergone all statutory tests within the last 5 years ?

Intermediate tests should be conducted at 2.5 year interval (+/-3 months) for leakage, operation of service equipment and undergone internal / external inspection of tank and fitting. In the case of portable tanks, the metal marking plate should be engraved to record the requirements of the IMDG Code Ref. Volume 1 (IMO number, Year of Manufacture, Test Pressure and the Date of the last test)

13.6 If fitted with tank framework, are these fitted with adequate strengthened fixing/lifting points?

Securing points should be provided on tanks / framework and the vessel. Sufficient fixing points and securing devices (steel chains) should also be available.

13.7 If the cargo is carried in containers, are these in a satisfactory condition?

Containers should be earthed and fitted with a metal marking plate showing the necessary details. P/V valves, if fitted, and ancillary pipework should be in a satisfactory condition.

13.8 If the cargo is carried in a tank vehicle, is the vehicle in sound structural condition and free of defects?

13.9 Is the tank vehicle properly secured in accordance with a Cargo Securing Manual?

13.10 Are tie-down attachments adequate to secure tank vehicles and prevent movement?

13.11 Are securing points on the vehicle adequately marked?

Vehicle Fixing Points: The minimum number of securing points for the Gross Vehicle Mass (GVM) should be (3.5T = GVM - 2 securing points on each side of the vehicle) ; (20T less than GVM = 30T - 3 securing points on each side of the vehicle) ; (30T less than GVM = 40T - min 4 securing points on each side of the vehicle)

13.12 the vehicle fitted with the appropriate number of securing points for the gross weight of the vehicle?

The securing points should be capable of transferring forces from the lashings to the chassis of the freight vehicle and should not be fitted to bumpers or axles.

13.13 Are drums and packages in satisfactory condition, free of leaks and clearly marked showing the cargo they contain?

Lifting equipment such as barrel chains, strops, winches, cranes and derricks should be free of defects. They should all have been load tested periodically and the results recorded.

13.14 Are drums stowed and lashed securely?

Drums should be stowed clear of the deck and securely lashed to prevent movement.

13.15 Are electric lights and fittings located in the vicinity of the tank in satisfactory condition and are they of the explosion-proof type?

Light fittings must be assessed to ensure that they do not present an explosive hazard.

13.99 Additional comments.