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TP 11960E
(01/2017)

Standards for the Construction, Inspection, and Operation of Barges Carrying Oil or Dangerous Chemicals in Bulk



<p>Responsible Authority</p> <p>The Director, Domestic Vessel Regulatory Oversight & Boating Safety is responsible for this document, including any change, correction, or update.</p>	<p>Approval</p> <p><u>“Original signed by Luc Tremblay”</u></p> <p>Luc Tremblay Marine Safety and Security</p> <p>Date signed: August 18, 2017</p>
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TP 11960E
(01/2017)

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1 GENERAL

1.1 FOREWORD

- 1.1.1 The purpose of this document is to provide a convenient, cohesive reference document to the various legislative and regulatory requirements and standards in Canada that apply to barges carrying oil and/or dangerous chemicals. These Standards have been developed not only to facilitate and simplify the tasks of the designers, builders, owners, operators, and inspectors of barges carrying oil and/or dangerous chemicals, but ultimately to support the safety and protection of persons working aboard Canadian barges carrying oil and/or dangerous chemicals and to protect the environment.
- 1.1.2 The operators of barges carrying oil and/or dangerous chemicals need to pay special attention to the intended operations and operating areas (including environmental factors and voyage considerations) when selecting the design most appropriate to the application. Designers and builders must specify and select materials and equipment for construction which are most appropriate to the intended service of the vessel. Not all of these matters can be covered by regulations or by published standards, and therefore the counsel of persons well-qualified and experienced in barge design, construction and operations should be sought for each new vessel application.
- 1.1.3 The designer, builder, owner and operator must always refer to the most recent version of the *Canada Shipping Act, 2001* (CSA 2001) and Regulations made there under, as these Standards do not replace the legal requirements and may not capture recent changes made to the various regulations and/or standards. Canadian statutes and regulations prevail in the case of conflict with these Standards.
- 1.1.4 The final authority for any section of these Standards is the latest relevant regulation, which must be consulted prior to any undertaking. A list of regulations and standards referred to in these Standards is provided in paragraph 1.3. This list, although comprehensive, may not capture every possible reference. The reader should therefore consult the Transport Canada (TC) websites for a complete listing of all CSA 2001 regulations and Transport Canada standards.

1.2 INTERPRETATION

1.2.1 In these Standards:

- "Act" means the Canada Shipping Act, 2001;
- "arctic waters" means the internal waters of Canada and the waters of the territorial sea of Canada and the exclusive economic zone of Canada, within the area enclosed by the 60th parallel of north latitude, the 141st meridian of west longitude and the outer limit of the exclusive economic zone; however, where the international boundary between Canada and Greenland is less than 200 nautical miles from the baselines of the territorial sea of Canada, the international boundary shall be substituted for that outer limit;

The above definition follows the Arctic Waters Pollution Prevention Act Definitions

- "Bulk" means liquid that is loaded directly into the barge or its permanently mounted independent tanks, and is confined only by the permanent structures thereof, without intermediate packaging;
- "Cargo area" means that part of the barge that contains cargo tanks, slop tanks, cargo pump-rooms including pump-rooms, cofferdams, ballast or void spaces adjacent to cargo tanks or slop tanks and also deck areas throughout the entire length and breadth of the part of the barge over the above-mentioned spaces. Where independent tanks are installed in hold spaces, cofferdams, ballast or void spaces at the after end of the aftermost hold space or at the forward end of the forward-most hold space are excluded from the cargo area.

The above definition follows the International Maritime Organization (IMO) International Code for the Construction and Equipment of Ships Carrying Dangerous chemicals in bulk (IBC) paragraph 1.3 Definitions

- "Cargo control station" means a space from which a person is able to control the loading, discharging or transferring of liquid cargo;
- "Cargo pump room" means a space containing pumps and their accessories for the handling of the cargo;
- "Dangerous chemicals" means any liquid substance listed in Chapter 17 of the *International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk*, published by the IMO;

The above definition follows TC Vessel Pollution and Dangerous Chemical Regulations Section 1

- "Dangerous chemical barge" means any description of non-self-propelled vessel, other than an oil or gas offshore drilling unit or

production unit, that is constructed or converted to carry bulk dangerous chemicals as cargo;

- "Deadweight" means the difference in tonnes between the displacement of a vessel in water of a specific gravity of 1.025 at the load waterline corresponding to the assigned summer freeboard and the lightweight of the vessel;

The above definition follows the Vessel Pollution and Dangerous Chemical Regulations Section 1

- "Existing oil barge" means an oil barge that is not a new oil barge;
- "Existing dangerous chemical barge" means a dangerous chemical barge that is not a new dangerous chemical barge;
- "Flashpoint" means the temperature in degrees Celsius at which a liquid will give off enough flammable vapour to be ignited, as determined by the Pensky Marten closed cup test;
- "Independent cargo tank" means a cargo containment envelope which is not contiguous with, or part of, the hull structure. An independent tank is built and installed so as to eliminate, whenever possible (or, in any event, to minimize), its stressing as a result of stressing or motion of the adjacent hull structure. An independent tank is not essential to the structural completeness of the barge's hull;
- "Inspector" means a person appointed as a marine safety inspector or other person, classification society or other organization authorized by the Minister or section 12 pursuant to section 11 of the Act;
- "Integrated tug and barge" (ITB) for the purpose of this standard, an integrated tug and barge means any tug barge combination in which a specially designed propulsion unit (tug) is mated to a cargo unit (barge) of a compatible special design or, where a propulsion unit (tug) is mated to a cargo unit (barge) with a specially designed connection system such that the combined unit has operating characteristics and seakeeping capabilities which exceed, under all anticipated weather conditions, those of a tug and barge where the tug is secured in the barge notch or on fenders by means such as wire rope, chains, lines or other tackle now commonly used in offshore towing.
- "Length (L)", in respect of an oil barge, means 96 percent of the total length on a waterline at 85 percent of the least moulded depth, measured from the top of the keel;

The above definition follows section 6 of the Vessel Registration and Tonnage Regulations. This length commonly called the "Registered Length" is shown on the Certificate of Registry. When applying various Regulations, the length as defined in the Regulations under consideration is applicable.

- "Lightweight" means the displacement of a barge in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, or crew and their effects;

The above definition follows the Vessel Pollution and Dangerous Chemical Regulations Section 1

- "Local Transport Canada Centre Technical Services" means the Local Transport Canada Centre, Technical Services in the region in which the barge will operate;

For contact details refer to the following website:

<http://www.tc.gc.ca/eng/regions.htm>

- "MTRB" means the Marine Technical Review Board established under section 26 of the Act;
- "Major Modification" means a modification of a vessel that substantially alters the dimensions or carrying capacity of the vessel, changes the type of the vessel, is intended to substantially prolong the life of the vessel, or alters the vessel such that it becomes subject to provisions of the *Vessel Pollution and Dangerous Chemicals Regulations* that would not be applicable to it otherwise;

The above definition follows the Vessel Pollution and Dangerous Chemical Regulations Section 1

- "New oil barge" means an oil barge for which the construction contract was placed, or was transferred into Canadian registry from a registry other than in Canada, or which is subject to a major modification after the coming into force of these Standards;
- "New dangerous chemical barge" means a dangerous chemical barge for which the construction contract was placed, or was transferred into Canadian registry from a registry other than in Canada, or which is subject to a major modification after the coming into force of these Standards;
- "Oil" means petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products (other than those petrochemicals which are subject to the provisions of Annex II of the present MARPOL Convention) and, without limiting the generality of the foregoing, includes the substances listed in Appendix I to this MARPOL Annex I.

The above definition follows IMO MARPOL Convention

- "Oil barge" means any description of non-self-propelled vessel, other than an oil or gas offshore drilling unit or production unit, that is constructed or converted to carry bulk oil as cargo;
- "Reid vapour pressure" means the vapour pressure as determined by the American Society for Testing of Materials, Test number D 323-08,

Standard Method of Test for Vapour Pressure of Petroleum Products
(Reid Method);

- "Recognized Organization" means a Classification Society which has signed an agreement with the Minister under section 10 of the Act

1.2.2 Unless specifically defined in paragraph 1.2.1, all words and expressions used in these Standards have the same meaning as in the *Canada Shipping Act, 2001*.

1.2.3 Where a discrepancy exists between the definition and the referenced document, the definition contained within the referenced document shall be used.

1.3 LIST OF REFERENCED REGULATIONS, STANDARDS AND GUIDELINES

1.3.1 Regulations made under the *Canada Shipping Act, 2001*:

- *Cargo, Fumigation and Tackle Regulations*
- *Collision Regulations*
- *Fire Detection and Extinguishing Equipment Regulations*
- *Hull Construction Regulations*
- *Life Saving Equipment Regulations*
- *Load Line Regulations*
- *Response Organizations and Oil Handling Facilities Regulations*
- *Safe Working Practice Regulations*
- *Vessel Certificates Regulations*
- *Vessel Pollution and Dangerous Chemicals Regulations*
- *Vessel Registration and Tonnage Regulations*

GUIDANCE:

These Regulations are available on the following website:

<http://laws-lois.justice.gc.ca/eng/acts/C-10.15/>

1.3.2 Regulations made under the *Canada Labour Code*:

- *Maritime Occupational Health and Safety Regulations*

GUIDANCE:

These Regulations are available on the following website:

<http://laws-lois.justice.gc.ca/eng/acts/L-2/index.html>

1.3.3 Regulations made under the *Transportation of Dangerous Goods Act, 1992*

- *Transportation of Dangerous Goods Regulations*

GUIDANCE:

These Regulations are available on the following website:

<http://laws-lois.justice.gc.ca/eng/acts/T-19.01/>

1.3.4 Transport Canada Technical Publications (TP)

- TP7301: Stability, Subdivision and Load Line Standard
- TP13340, Standard for The Tonnage Measurement of Vessels (2007)

GUIDANCE:

These publications are available on the following website:

<http://www.tc.gc.ca/eng/marinesafety/tp-menu-515.htm>

1.3.5 International Maritime Organization (IMO) Instruments

- BCH Code- International Code for the Construction and Equipment Of Ships Carrying Dangerous chemicals in bulk
- IBC Code- International Code for the Construction and Equipment Of Ships Carrying Dangerous chemicals in bulk
- MARPOL Convention- International Convention for the Prevention of Pollution from Ships
- Fire Safety Systems Code (FSS Code)
- IS 2008- International Code on Intact Stability, 2008

GUIDANCE:

These publications are available on the following website:

<http://www.imo.org/Publications/Pages/Home.aspx>

1.4 APPLICATION

1.4.1 Sections 1 to 4 and 6 to 8 of these Standards apply:

- 1.4.1.1 to every Canadian oil barge or dangerous chemical barge over 15 tons gross tonnage, and
- 1.4.1.2 except where otherwise provided in paragraph 1.4.5, to every oil barge or dangerous chemical barge over 15 gross tonnage that is registered in a country other than Canada and that operates in Canadian waters.

GUIDANCE:

In these sections, when there are references to requirements found within the Vessel Pollution and Dangerous Chemicals Regulations, the IMO MARPOL convention, or other regulatory documents and where such requirements are stated to apply to vessels over 150GT, only those vessels over 150GT must comply with the stated requirements. Vessels over 15 gross tonnage may comply and this is recommended, but it is not a regulatory requirement to do so.

1.4.2 Section 5 of these Standards applies:

1.4.2.1 to every Canadian oil barge or dangerous chemical barge, and

1.4.2.2 except where otherwise provided in paragraph 1.4.5, to every oil barge that is registered in a country other than Canada and that operates in Canadian waters.

1.4.3 Section 9 of these Standards applies:

1.4.3.1 to every Canadian barge which is normally stationary and used to store oil or dangerous chemicals in bulk in support of other marine operations, and

1.4.3.2 except where otherwise provided in paragraph 1.4.5, to every barge that is registered in a country other than Canada and that operates in a similar manner in Canadian waters.

1.4.4 A stationary barge is one that is normally beached, diked or permanently attached to a fixed structure when performing normal duties. Such barges may be capable of being moved periodically for repairs, inspection or reassignment while not carrying cargo.

1.4.5 An oil barge or dangerous chemical barge is registered in a country other than Canada need not be inspected and certificated in accordance with these Standards but shall comply with the towing and operational requirements sections of 7 and 8 thereof if:

a) the foreign state has oil barge or dangerous chemical barge regulations which, in the opinion of the Minister, closely approximate those of these Standards, and

b) is in possession of a valid inspection certificate issued by the Government of that country.

1.5 BARGES THAT ARE CARRYING A CREW

1.5.1 The construction, inspection and operation of an oil barge or dangerous chemical barge that carry a crew shall meet the applicable requirements

applicable in this case under various regulations such as the *Life Saving Equipment Regulations*, the *Fire Detection and Extinguishing Equipment Regulations* and others as applicable.

GUIDANCE:

The expression “carrying a crew” is intended to address barges that are navigating or operated offshore with a crew on duty on board on a regular basis during the voyage, even if they are not accommodated on board. In general personnel from the tug that may go on board temporarily for ad-hoc work such as the replacement of a navigation light, secure cargo, for making up or dismantling the towing operation, or berthing or undocking the barge are not considered to be a crew carried by the barge. Crew or shore personnel on board at the dock or at anchor for the loading or discharge of liquid cargo are also not considered to be the “carriage of a crew”.

2 PLAN APPROVAL, INSPECTION AND CERTIFICATION

2.1 CERTIFICATION AND INSPECTION OF BARGE OF MORE THAN 24 METRES IN LENGTH

2.1.1 TC has set out the *Certification of Vessels of 24 Metres in Length and Above* Policy which came into force on January 1, 2014, directing owners of vessels 24 metres in length and above to obtain their certificates and certification inspections from authorized third parties. As part of this policy, owners of new vessels must automatically obtain services from a third party (including vessels registering in Canada for the first time). Existing vessels will be phased in under the Alternative Service Delivery (ASD) initiative over the next five years, based on the next dry-dock inspection date of each vessel. Existing vessels should be in class where possible, but this will not be feasible for all vessels. Once subject to this policy, vessels will be enrolled in the Delegated Statutory Inspection Program (DSIP), which is used to implement the ASD initiative.

GUIDANCE:

The Policy on Certification of Vessels of 24 metres in Length and Above is available on the following website:

<http://www.tc.gc.ca/eng/marinesafety/tp-tp13585-policy-menu-4359.html>

2.2 DELEGATED STATUTORY INSPECTION PROGRAM (DSIP)

2.2.1 In order to promote an efficient marine transportation system and encourage the harmonization of marine practices, Transport Canada has entered into formal agreements with certain Classification Societies, under the authority of the Act. These agreements cover the delegation of statutory inspection and certification functions and product approvals.

2.2.2 When a Classification Society enters into this type of agreement with Transport Canada, it is known as a Recognized Organization (RO). There are currently seven Recognized Organizations in Canada:

- American Bureau of Shipping (ABS) <http://www.eagle.org/>
- Bureau Veritas (BV) <http://www.bureauveritas.com/>
- DNV GL Group (DNV-GL) <http://www.dnvgl.com/>
- Lloyd's Register (LR) <http://www.lr.org/>
- Nippon Kaiji Kyokai (ClassNK) <http://www.classnk.com>

- Korean Register (KR) <http://www.krs.co.kr>
- RINA Services SpA (RINA) <http://www.rina.org/en>

GUIDANCE:

For more information on DSIP, refer to:

<http://www.tc.gc.ca/eng/marinesafety/dvro-fsc-dspi-1781.htm>

2.3 SUBMISSION FOR APPROVAL OF PLANS AND DATA

2.3.1 SUBMISSIONS OF PLANS AND DATA: NEW OIL BARGES AND NEW DANGEROUS CHEMICAL BARGES

- 2.3.1.1 For all new oil barges and new dangerous chemical barges of 24 metres in length and above, all plans and data shall be submitted for approval to the chosen RO before construction.
- 2.3.1.2 For all new oil barges and new dangerous chemical barges greater than 15 gross tonnage and less than 24 metres in length, all plans and data shall be submitted to the local Transport Canada Technical Service office before construction, unless the Authorized representative chooses to enroll the barge in DSIP. Plans and data for barges enrolled in DSIP shall be sent to the selected RO.

2.3.2 EXISTING BARGES - MODIFICATIONS

- 2.3.2.1 Where an existing oil barge or dangerous chemical barge undergoes modification not deemed to be a major modification and so be considered a new oil barge or new dangerous chemical barge, the Authorized Representative shall submit updates of the previously approved plans to the local Transport Canada Technical Services office or, if the barge is enrolled in DSIP, to the selected RO.
- 2.3.2.2 Irrespective of major modification or not, no repairs, alterations or other modifications which affect the operational or environmental safety of any oil or dangerous chemical barge shall be made without approved plans.

2.4 REGISTRATION

2.4.1 GENERAL

2.4.1.1 All non-pleasure vessels, including barges, must be registered as per section 46 of part 2 of *CSA 2001*.

2.4.1.2 The following Regulations and Standards apply to registration and tonnage measurement:

- *Vessel Registration and Tonnage Regulations*
- *TP13340, Standard for The Tonnage Measurement of Vessels (2007)*

GUIDANCE:

More information on registration and tonnage is available on the following website:

<http://www.tc.gc.ca/vessel-registry>

2.4.2 BARGES ≤ 15 GT

2.4.2.1 Barges of not more than 15 gross tonnage may be registered either in the Small Vessel Register or in the Canadian Register of Vessels.

2.4.3 BARGES > 15 GT

2.4.3.1 Barges of more than 15 gross tonnage must be registered in the Canadian Register of Vessels.

2.5 INSPECTIONS

2.5.1 NEW OIL BARGES AND NEW DANGEROUS CHEMICAL BARGES

2.5.1.1 All new oil barges and new dangerous chemical barges over 24 metres in length undergo periodic inspections, as required by the Rules of the selected Recognized Organization, in conformity with IMO Harmonized System of Survey and Certification (HSSC).

2.5.1.2 It is recommended that all new oil barges and new dangerous chemical barges of greater than 15 gross tonnage and less than 24 metres in length be enrolled in DSIP and undergo periodic inspections, as required by the Rules of the selected RO, in conformity with the HSSC.

2.5.1.3 All new oil barges and new dangerous chemical barge of greater than 15 gross tonnage and less than 24 metres in length that are not enrolled in DSIP shall be inspected by Transport Canada Maritime Safety and

Security (TCMSS) in accordance with the requirements of Appendix C: Inspection Standards for Existing Barges.

2.5.2 EXISTING OIL BARGES AND EXISTING DANGEROUS CHEMICAL BARGES

2.5.2.1 All existing oil barges and existing dangerous chemical barges of more than 24 metres shall be enrolled in the DSIP program under the Alternative Service Delivery (ASD) initiative before their next renewal survey, as per the *Certification of Vessels of 24 metres in length and Above* Policy. Until the barges are enrolled in the DSIP program they shall be inspected by TCMSS in accordance with the requirements of Appendix C: Inspection Standards for Existing Barges.

2.5.2.2 All existing oil barges and existing dangerous chemical barge of greater than 15 gross tonnage and less than 24 metres in length that are not enrolled in DSIP shall be inspected in accordance with the requirements of Appendix C: Inspection Standards for Existing Barges.

GUIDANCE:

These requirements are the same as those originally published within TP11960: Standards and Guidelines for the Construction, Inspection and Operation of Barges that Carry Oil in Bulk as published in 1995; however, the periodicity has been harmonized with current requirements of the HSSC.

Existing oil barges and existing dangerous chemical barges that carry cargo on deck shall be maintained in class and undergo inspections as per the requirements of paragraph 7.4.

2.6 CERTIFICATION

2.6.1 VESSEL CERTIFICATES REGULATIONS

2.6.1.1 All oil barges and dangerous chemical barge of more than 15 gross tonnage must be certificated as cargo vessels as per the requirements of the *Vessel Certificates Regulations*.

The Vessel Certificates Regulations is available in the following website:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2007-31/index.html>

2.6.2 LETTERS OF COMPLIANCE

2.6.2.1 In addition to the Cargo Vessel Certificate issued under the *Vessel Certificates Regulations*, when an oil barge has been duly inspected in accordance with the provisions of these Standards, a Letter of

Compliance, in the format shown in Appendix D, shall be issued by the RO or TCMSS as appropriate.

2.6.2.2 In addition to the certificate issued under the *Vessel Certificates Regulations*, when a dangerous chemical barge has been duly inspected in accordance with the provisions of these Standards a Letter of Compliance, in the format shown in Appendix E, shall be issued by the RO or TCMSS as appropriate

GUIDANCE:

For an oil barge or dangerous chemical barge additional certificates may be necessary as defined by the Vessel Pollution and Dangerous Chemical Regulations and other applicable Transport Canada regulations.

In the case of an existing barge inspected by Transport Canada and not enrolled in the DSIP program, the certificates and letter of compliance detailed in Appendix D or E, as applicable, shall be issued by the local Transport Canada Technical Services office. Where the barge is enrolled in the DSIP program, the certificates and letter of compliance detailed in Appendix D or E, as applicable, shall be issued by the Recognized Organization, which the barge is maintained in class with.

2.7 EXEMPTION AND EQUIVALENCY

2.7.1 MARINE TECHNICAL REVIEW BOARD (MTRB)

2.7.1.1 The Marine Technical Review Board (MTRB) is established under section 26 of the Act to review applications for equivalencies or exemptions to requirements set out in regulations made under the Act. These applications concern individual Canadian vessels or the issuance of Canadian maritime documents to persons. The MTRB cannot make a decision that affects multiple vessels or classes of vessels.

2.7.1.2 To apply for an exemption or equivalency through the MTRB, the applicant should first contact the nearest Transport Canada Centre (TCC) or the Recognized Organization in the case of delegated vessels. A written application should then be submitted, and should contain the proposed alternative explaining its equivalency. A Marine Safety Inspector may contact the applicant to discuss the proposed exemption or equivalency, prior to processing the application.

For more information on the MTRB and its processes, refer to:

<http://www.tc.gc.ca/eng/marinesafety/rsqa-cea-mtrb-menu-316.htm>

2.7.2 REQUEST FOR POLICY DECISION

- 2.7.2.1 To review applications for equivalencies or exemptions to requirements of standards not incorporated into regulations, Transport Canada Marine Safety and Security has established a process to grant Policy Decisions.
- 2.7.2.2 To apply for an exemption or equivalency to this standard or document referred to in the standards, other than regulations, the applicant should first contact the nearest TCC or the Recognized Organization in the case of delegated vessels.

3 LOAD LINES, STABILITY AND LOADING INFORMATION

3.1 LOAD LINES

3.1.1 Other than in sheltered waters, all oil barges and dangerous chemical barges of more than 24 metres, shall comply with all applicable requirements of the *Load Line Regulations*.

GUIDANCE:

The Transport Canada Load Line Regulations can be found at the following location:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2007-99/>

3.2 INTACT STABILITY

Oil barges and dangerous chemical barges shall comply with the following intact stability requirements:

3.2.1 Every existing oil barge that are not carrying a crew and that is assigned a load line, they shall satisfy Transport Canada Marine Safety Publication: *TP7301: Stability, Subdivision and Load Line Standards: STAB 8 Interim Standard for the Intact Stability of Unmanned Cargo Barges* or may alternatively comply with IMO 2008 Intact Stability (IS) Code Part B Section 2.2 Stability Standards for Pontoons.

3.2.2 Every existing oil barge that carry a crew shall comply with the requirements of the Standard TP 7301 Stab 6, or the IMO 2008 IS Code Part A Chapter 2.

3.2.3 Every new oil barge that are not carrying a crew, whether or not assigned a load line shall satisfy the stability requirements referenced within IMO 2008 IS Code Part B Section 2.2 Stability Standards for Pontoons.

3.2.4 Every new oil barge that carry a crew shall comply with the requirements of the IMO 2008 IS Code Part A Chapter 2.

3.2.5 As required by the *Vessel Pollution and Dangerous Chemical Regulations* subparagraph 12(1)(a)(iii), oil barges greater than 5000 tons deadweight shall satisfy the intact stability requirements of MARPOL Annex I Regulation 27.

3.2.6 As prescribed by subsections 52(2) and 52(3) of the *Vessel Pollution and Dangerous Chemical Regulations*, dangerous chemical barges shall satisfy the design and construction requirements of the IBC Code or the BCH

Code depending on their construction or registration date. In both cases compliance with the following stability standards is acceptable:

- a) for barge that are not carrying a crew and of not more than 5000 tons deadweight the 2008 IS Code Part B Section 2.2 Stability Standards for Pontoons; or
- b) for barges that carry a crew or for barge not carrying a crew and of more than 5000 tons deadweight the IMO 2008 IS Code Part A Chapter 2.

3.2.7 Oil barges and dangerous chemical barges that are required to comply with the standards TP 7301 Stab 6, the IMO 2008 IS Code Part A Chapter 2, or the MARPOL Annex I Regulation 27 regulation may comply with the alternative criteria from Chapter 4 of the circular IMO MSC.1/Circ.1281 *Explanatory Notes to the International Code On Intact Stability, 2008* if compliance with the requirement for the maximum GZ at more than 25° is not practical.

GUIDANCE:

Unmanned deck cargo barges carrying oil tank trucks (AKA not carrying a crew) and/or independent oil tanks on deck, which do not require compliance with this Standard, are to comply with the following:

Alternative Standard for the Intact Stability of Unmanned Deck Cargo Barges Carrying Oil Tank Trucks

<http://www.tc.gc.ca/eng/marinesafety/oep-cargoes-compliance-stability-1064.htm>

<http://www.tc.gc.ca/eng/marinesafety/oep-cargoes-compliance-altstandard-902.htm>

These minimum freeboard tables may be used as an alternative to TP 7301: STAB 8 to evaluate the intact stability.

If trucks or non-structural tanks are used to carry oil as cargo they shall be adequately secured to the deck for the intended voyage. Securing arrangements shall be in accordance with Part 3 of the Cargo, Fumigation and Tackle Regulations and Part V of the Tackle Regulations or the IMO Code of Safe Practice for Cargo Stowage and Securing.

In either case the equipment used shall satisfy the requirements within TP 9396 Wear Standards for Cargo Gear.

3.3 DAMAGE STABILITY

- 3.3.1 As prescribed in subparagraphs 12(1)(a)(i) to 12(1)(a)(iii) of the *Vessel Pollution and Dangerous Chemical Regulations* every oil barge of 150 gross tonnage or more shall comply with the applicable requirements of regulations 25 to 28 of Annex I to MARPOL with regards to hypothetical outflow of oil, size limitation and arrangements of cargo tanks, subdivision and stability.
- 3.3.2 As prescribed by subsections 52(2) and 52(3) of the *Vessel Pollution and Dangerous Chemical Regulations* every dangerous chemical barge shall comply with the applicable design and construction requirements of the IBC Code or the BCH Code depending on their construction or registration date.
- 3.3.3 Oil barges which comply with section 47 of the *Vessel Pollution and Dangerous Chemicals Regulations* need only satisfy the damage stability requirements for an extent of bottom damage equal to the height of double bottom fitted.

3.4 LOADING INFORMATION

- 3.4.1 Where due to the length of an oil or dangerous chemical barge the rules of the Recognized Organization requires that the person in charge of cargo handling during the loading or unloading of any oil barge shall be provided with sufficient information to permit the avoidance of unacceptable stresses in the barge structure, it shall be in a form approved by Transport Canada or the Recognized Organization as appropriate.
- 3.4.2 The person in charge of cargo handling during the loading or unloading of all dangerous chemical barges shall be provided with sufficient information, in a form approved by Transport Canada or the Recognized Organization as appropriate, to permit the avoidance of unacceptable stresses in the barge structure.

4 CONSTRUCTION REQUIREMENTS

4.1 HULL CONSTRUCTION

4.1.1 GENERAL

4.1.1.1 As prescribed by section 7 of the *Hull Construction Regulations* the structural strength of every ship shall be sufficient for the service for which the ship is intended. In the context of the *Hull Construction Regulations*, ships include vessels that are not self-propelled (i.e. barges).

4.1.2 NEW OIL BARGES

4.1.2.1 As prescribed by the *Load Line Regulations* sections 5 and 17 all new oil barges of 24 metres and more shall be constructed in accordance with the Rules of a Recognized Organization.

4.1.2.2 All oil barges of less than 24 metres shall have adequate global and local strength for their intended operation. It is recommended that all new oil barges of greater than 15 gross tonnage and less than 24 metres in length be constructed in accordance with the Rules of a Recognized Organization.

4.1.3 NEW DANGEROUS CHEMICAL BARGES

4.1.3.1 All new dangerous chemical barges of 24 metres or more shall be constructed in accordance with the Rules of a Recognized Organization.

4.1.3.2 All dangerous chemical barges of less than 24 metres shall have adequate global and local strength for their intended operation. It is recommended that all new dangerous chemical barges of greater than 15 gross tonnage and less than 24 metres in length be constructed in accordance with the Rules of a Recognized Organization.

4.2 MACHINERY, SYSTEMS AND ELECTRICAL

4.2.1 OIL BARGES

4.2.1.1 All existing oil barges shall meet the applicable machinery and system requirements of the *Marine Machinery Regulations* or the equivalent rules of a Recognized Organization applicable at the time it was built.

4.2.1.2 All existing oil barges shall meet the applicable requirements of the 1995 edition of this standard, or the equivalent rules of a Recognized Organization, with regards to the cargo handling system, cargo tank ventilation, bilge system and tank sounding arrangement.

- 4.2.1.3 All existing oil barges shall meet the applicable electrical requirements of the Transport Canada TP127 *Ships Electrical Standards* or the equivalent rules of a Recognized Organization.
- 4.2.1.4 All new oil barges shall meet the applicable machinery, system and electrical requirements as prescribed by the rules of a Recognized Organization with regards to the machinery, systems, electrical, cargo handling system, cargo tank ventilation, bilge system and tank sounding arrangement.

4.2.2 DANGEROUS CHEMICAL BARGES

- 4.2.2.1 As prescribed by subsections 52(2) and 52(3) of the *Vessel Pollution and Dangerous Chemical Regulations* every dangerous chemical barge, regardless of size, shall comply with the applicable design, construction, equipment and system requirements of the IBC Code or the BCH Code depending on their construction or registration date.
- 4.2.2.2 In addition to the requirements of the IBC and BCH Codes, all new chemical barges of more than 24 metres shall meet the applicable machinery, system and electrical requirements as prescribed by the rules of a Recognized Organization with regards to the machinery, systems, electrical, cargo handling system, cargo tank ventilation, bilge system and tank sounding arrangement.

GUIDANCE:

Please note that the IMO IBC and BCH Codes reference the Convention for the Safety of Life at Sea (SOLAS), which would not normally apply to barges as they are not self-propelled. However in this case, the applicability of the Vessel Pollution and Dangerous Chemical Regulations, the IBC and BCH Code override the applicability of SOLAS and all elements referenced by the IBC and BCH Codes within SOLAS are to apply to dangerous chemical barges, except for those items specific to propulsion machinery.

5 POLLUTION PREVENTION REQUIREMENTS

5.1 VESSEL POLLUTION AND DANGEROUS CHEMICAL REGULATIONS

5.1.1 GENERAL

5.1.1.1 Every oil barge and dangerous chemical barge shall comply with all applicable requirements of the *Vessel Pollution and Dangerous Chemicals Regulations*.

GUIDANCE:

The Transport Canada Vessel Pollution and Dangerous Chemicals Regulations can be found at the following location:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-69/>

5.1.1.2 As prescribed in subparagraphs 12(1)(a)(i) to 12(1)(a)(iii) of the *Vessel Pollution and Dangerous Chemical Regulations* every oil barge of 150 gross tonnage or more shall comply with the requirements of regulations 25 to 26 of Annex I to MARPOL with regards to hypothetical outflow of oil, size limitation and arrangements of cargo tanks, subdivision and stability.

5.1.1.3 As stated in subsection 12(6) of the *Vessel Pollution and Dangerous Chemical Regulations*, the requirement of 12(1)(a)(iv) to 12(1)(a)(vii) and regulations 29 to 31 of Annex I to MARPOL with regards to slop tank arrangements, pumping, piping and discharge arrangements, oil discharge monitoring and control system do not apply to barge that does not have mechanical means of propulsion and cannot wash or ballast its cargo tanks while on route.

5.2 DOUBLE HULL REQUIREMENTS

5.2.1 OIL BARGE DELIVERED AFTER 1996

5.2.1.1 As prescribed by section 43 of the *Vessel Pollution and Dangerous Chemicals Regulations*, any oil barge delivered after July 5, 1996 must have a double-hull that meet the requirements of regulation 19 of the Annex I of MARPOL.

5.2.1.2 Any oil barge delivered after July 5, 1996, of less than 150 gross tonnage is exempted from the requirements of section 43 of the *Vessel Pollution and Dangerous Chemicals Regulations* on the basis of the cargo size tank requirements of regulation 26.1 of MARPOL Annex I.

5.2.2 OIL BARGE DELIVERED BEFORE 1996

5.2.2.1 As prescribed by section 44 of the *Vessel Pollution and Dangerous Chemicals Regulations*, any existing oil barge delivered on or before July 6, 1996 that is a Category 2 oil tanker or Category 3 oil tanker and that holds an International Oil Pollution Prevention Certificate must have a double-hull that meets the requirements of Regulation 19 of the Annex I of MARPOL, not later than January 1, 2015.

5.2.2.2 As prescribed by section 45 of the *Vessel Pollution and Dangerous Chemicals Regulations*, any existing oil barge, regardless of the delivery date, with a deadweight of 600 tons and above that engages on voyages outside of Canadian waters and that is carrying heavy grade oil as cargo, must have a double-hull that meets the requirements of Regulation 19 of the Annex I of MARPOL, not later than January 1, 2015.

5.2.2.3 As prescribed by section 46 of the *Vessel Pollution and Dangerous Chemicals Regulations*, any existing oil barge to which section 43 to 45 do not apply, must be fitted with a double-hull or a double containment system determined by the Minister to be as effective as a double hull for the prevention of a discharge of oil, no later than January 1, 2015.

5.2.2.4 The requirements of section 46 of the *Vessel Pollution and Dangerous Chemicals Regulations* do not apply if the oil barge:

- a) is of less than 2000 gross tonnage,
- b) has no cargo tanks that exceed 200 m³ capacity, and
- c) engages only on voyages on:
 - i. the Mackenzie River,
 - ii. the waters contiguous to the Mackenzie River that are not within shipping safety control zone 12, or
 - iii. the rivers, streams or lakes that feed into the Mackenzie River.

5.2.2.5 Oil barges of less than 150 gross tonnage delivered on or before July 5, 1996 are exempted from the requirements of section 46 of the *Vessel Pollution and Dangerous Chemicals Regulations* on the basis of the cargo size tank requirements of regulation 26.1 of MARPOL Annex I.

5.2.3 DOUBLE-BOTTOM HEIGHT ALTERNATIVE

5.2.3.1 As prescribed by section 47 of the *Vessel Pollution and Dangerous Chemicals Regulations*, any oil barge of less than 5000 tons deadweight and that engages only on voyages in waters under Canadian jurisdiction within 40 nautical miles from the nearest land, may have a reduce double-bottom height equal to the wing tank width calculated according to the formula in regulation 19.6.2 of Annex I to MARPOL.

5.2.4 NEW AND EXISTING DANGEROUS CHEMICAL BARGES

5.2.4.1 As prescribed by section 47 of the *Vessel Pollution and Dangerous Chemicals Regulations*, any new or existing dangerous chemical barge regardless of size shall comply with the requirements and shall comply with the applicable design and construction requirements of the IBC Code or the BCH Code depending on their construction or registration date.

- a) Any dangerous chemical barge subject to the requirements of the IBC Code must have its cargo tank located as a distance inboard as prescribed in paragraph 2.6 of the Code.
- b) Any dangerous chemical barge subject to the requirements of the BCH Code must have its cargo tank located as a distance inboard as prescribed in paragraph 2.2.4 of the Code.

5.3 ARCTIC WATERS POLLUTION PREVENTION ACT

5.3.1 Any oil barge and every dangerous chemical barge that navigates in an Arctic Waters shall comply with the pollution prevention requirements of the *Arctic Waters Pollution Prevention Act*, and the following regulations and standards, as applicable:

- a) Arctic Shipping Pollution Prevention Regulations.
- b) Shipping Safety Control Zones Order.
- c) Arctic Waters Pollution Prevention Regulations
- d) TP 12260 - Equivalent Standards for the Construction of Arctic Class Ships (1995).

GUIDANCE:

The regulations and standards can be found at the following locations:

<http://laws-lois.justice.gc.ca/eng/acts/A-12/index.html>
<http://www.tc.gc.ca/eng/marinesafety/tp-menu-515.htm>

6 OUTFIT AND EQUIPMENT

6.1 FIRE SAFETY EQUIPMENT

6.1.1 Any barge that carries a crew shall comply with the fire safety requirements of the *Fire Detection and Extinguishing Equipment Regulations* as a Class K ship.

GUIDANCE:

The new Vessel Fire Safety Regulations are not applicable to vessels that do not have mechanical means of propulsion, therefore a barge that carries a crew should continue to comply with the Fire Detection and Extinguishing Equipment Regulations as they were before the coming into force of the new regulations. The Fire Detection and Extinguishing Equipment Regulations can be found in the following location:

http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1422

6.1.2 In addition to the requirements of the *Fire Detection and Extinguishing Equipment Regulations* any barge shall be provided with the following fire extinguishing equipment during any transfer of cargo, or operation of barge machinery or boilers:

6.1.2.1 in the boiler room of every oil barge fitted with oil burners:

- a) a fixed fire-extinguishing system meeting the requirements of the *Fire Detection and Extinguishing Equipment Regulations* Schedule III or the IMO Fire Safety Systems Code (FSS Code);
- b) one 9L foam fire extinguisher where the number of burners does not exceed two, and with one additional 9L foam fire extinguisher for each additional burner, except that in no case need there be more than four such extinguishers;
- c) one 135L foam type extinguisher, provided with hoses on reels suitable of reaching any part of the boiler room; and
- d) a receptacle containing at least 0.1m³ of sand or other dry material suitable for quenching oil fires, and a shovel for distributing the material.

6.1.2.2 in every compartment containing internal combustion engines,

- a) a fixed fire-extinguishing system meeting the requirements of the *Fire Detection and Extinguishing Equipment Regulations* (Schedule III) or the FSS Code;
- b) one 9L foam fire extinguisher where the power of the engines does not exceed 373 kW, and with one additional 9L foam fire extinguisher for

each additional 746 kW or fraction thereof except that in no case need there be more than four such extinguishers;

6.1.2.3 in the cargo pump room,

- a) of a new oil barge or a new dangerous chemical barge a fixed fire-extinguishing system meeting the requirements of *Fire Detection and Extinguishing Equipment Regulations* (Schedule III) or the FSS Code; and
- b) of all existing barges one 9L foam fire extinguisher;

6.1.2.4 in the cargo area, two 9L foam fire extinguishers located where most convenient in case of emergency; and

6.1.2.5 in the control station, one 4.5kg dry chemical fire extinguisher.

6.1.3 One 4.5 kg CO₂ fire extinguisher or one dry chemical fire extinguisher of at least 4.5 kg capacity may be provided in lieu of any 9L foam fire extinguisher required by paragraph 6.1.2.

6.2 LIFE SAVING APPLIANCES

6.2.1 Any barge that carries a crew shall comply with the requirements of the *Life Saving Equipment Regulations* as a Class XI ship.

GUIDANCE:

The Life Saving Equipment Regulations can be found in the following location:

<http://laws-lois.justice.gc.ca/eng/regulations/C.R.C., c. 1436/>

6.3 RAILS, STANCHIONS, BULWARKS AND FREEING PORTS

6.3.1 Any barge that carries a crew shall be fitted with rail or equivalent protection to comply with the provision of subsections 86(5) and 86(6) of the *Hull Construction Regulations*.

6.3.2 As prescribed by subsection 86(8) of the *Hull Construction Regulations*, all exposed rotating machinery shall be protected by covers, guards or rails in order that the danger of accident may be minimized.

6.3.3 Every barge fitted with bulwark shall comply with the provision of subsection 86(9) of the *Hull Construction Regulations*.

6.4 SACRIFICIAL ANODES

- 6.4.1 In every oil barge, the material and arrangement of sacrificial anodes shall be in accordance with the Rules of a Recognized Organization.
- 6.4.2 Sacrificial anodes made of magnesium or of an alloy that contains magnesium shall not be fitted in any cargo tank used to carry flammable liquids or in any tank adjacent a cargo tank used to carry flammable liquids.
- 6.4.3 Sacrificial anodes made of aluminum or aluminum alloy may be fitted in any cargo tank carrying flammable liquids provided that:
- 6.4.3.1 anodes shall be constructed with steel cores such that the anodic material is retained even when wasted;
 - 6.4.3.2 each anode shall have at least two welded or bolted connections to the tank structure, and shall not be attached thereto by clamps or setscrews;
 - 6.4.3.3 anodes shall not be attached to the shell, nor shall the two ends of support be attached to separate structural members;
 - 6.4.3.4 no anode shall be installed more than 2 m above the bottom of a cargo tank except where the structural arrangement of the tank would prevent a detached anode from falling any greater distance;
 - 6.4.3.5 no anode shall be located under a tank hatch or Butterworth opening unless protected by the adjacent structure; and
 - 6.4.3.6 the potential energy of the anode shall not exceed 275J, the height of the anode being measured from the tank bottom to the centre of the anode except where otherwise provided by paragraph 6.4.3.4, and its weight being the total weight including securing devices.
- 6.4.4 Sacrificial anodes made of materials other than magnesium, aluminum or alloys thereof, may be fitted in any cargo tank carrying flammable liquids.

6.5 CARGO GEAR

- 6.5.1 The cargo gear of every oil barge shall comply with all applicable requirements of the Part 3 of the *Cargo, Fumigation and Tackle Regulations*.

GUIDANCE:

The Cargo, Fumigation and Tackle Regulations, can be found in the following location:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2007-128/index.html/>

6.6 TOWING ATTACHMENTS

- 6.6.1 Every oil barge and dangerous chemical barge shall be equipped with a sufficient number of cleats, bollards, eye plates or other fittings, appropriately arranged to ensure safe and secure attachment of the barge to the towing vessel through either the primary or emergency towlines.
- 6.6.2 Every towing attachment provided under paragraph 6.6.1, and structure in way of, shall satisfy the strength requirements of a Recognized Organization taking into account the intended loadings described in Appendix A and be marked with its safe working load in a permanent manner.

6.7 EMERGENCY TOWLINE

- 6.7.1 Every oil barge or dangerous chemical barge that operates on voyages other than sheltered waters voyages shall be equipped with an emergency towline that is:
- a) capable of immediate deployment without need for personnel from the towing vessel to board the barge; and
 - b) kept rigged and ready for use.
- 6.7.2 All wires, chains, and other gear used in making up the emergency towline, not including the synthetic trailing lines, to the towing vessel shall be at least equal in strength to the emergency towline. Shackles and other devices used to join the components of the towline assembly shall have a breaking strength equal to 125% or greater of the emergency towline.
- 6.7.3 The emergency towline shall be visually inspected annually. The emergency towline shall be proof tested at rated strength every two years for synthetic rope and every five years for steel wire rope.

GUIDANCES

Guidelines respecting the make-up of emergency towline assemblies are provided in Appendix A to these Standards.

6.8 BOARDING LADDERS

- 6.8.1 Every oil barge and dangerous chemical barge shall be equipped with boarding ladders in accordance with the Rules of a Recognized Organization.
- 6.8.2 Except in the case of a barge where it can be shown that safe boarding at sea may be accomplished without the use of a ladder, every barge shall be fitted with boarding ladders at each quarter.

6.8.3 Every boarding ladder provided in accordance with the requirements of paragraph 6.8.2 shall extend from the light waterline to the freeboard deck, and shall consist of:

- a) a steel ladder or rungs attached to the exterior of the hull and adequately protected against operational damage by permanent fenders or deflector plates; or
- b) footholds cut into the side shell of the oil barge at locations such that:
 - i. the corners of each foothold are smooth and well radiused to avoid structural cracking, and
 - ii. the footholds are backed within the hull by a watertight recess of equivalent strength to the surrounding hull structure.

6.8.4 The side shell longitudinals in way of shell recesses are to remain intact or the strength of the longitudinals is to be fully compensated in accordance with the Rules of a Recognized Organization.

6.8.5 Handholds shall be arranged on the freeboard deck at the head of each ladder and, except in the case of an oil barge or dangerous chemical barge that operates only on sheltered voyages, safety lines or grab rails shall be provided between the ladder locations and the topline attachment points.

6.9 FENDERS

6.9.1 To avoid risk of sparks by efficiently preventing steel to steel contact, suitable fendering shall be provided whenever an oil barge is moored alongside another vessel, dock or like marine facility.

6.10 GROUND TACKLE

6.10.1 All new oil barges and new dangerous chemical barges that are carrying a crew, and are not engaging solely on those voyages described in subsection 46(2) of the *Vessel Pollution and Dangerous Chemicals Regulations* shall be outfitted with at least one anchor and be fitted with suitable sized recovery devices in accordance with the equipment number calculation of a Recognized Organization.

6.11 STEERING ASSISTANCE DEVICES

6.11.1 Oil barges or dangerous chemical barges outfitted with a bow thruster, or equivalent steering assistance devices shall not be considered a self-propelled vessel as long as the device is only used in the following circumstances:

- a) by tug personnel onboard the barge when the assigned tug is engaged in docking or undocking the barge;
- b) by tug personnel onboard the tug when the tug and barge are operating as an integrated tug and barge unit; or
- c) by tug personnel onboard the tug when the assigned tug is pushing the barge and attached by wire ropes, chains, lines or other similar tackle, so therefore not an integrated tug and barge unit.

7 TOWING AND OPERATIONAL REQUIREMENTS

7.1 APPLICATION

7.1.1 This section is applicable to every Canadian oil barge or Canadian dangerous chemical barge and to every oil barge or dangerous chemical barge registered in a country other than Canada, when operating in Canadian waters.

7.2 TOWING VESSEL ASSIGNMENT

7.2.1 When assigning a towing vessel to any oil barge towing operation, the Authorized Representative and the Master thereof shall ensure by the evaluation of all pertinent factors that:

- a) the towing vessel is in all respects capable of maintaining safe control over the oil barge in all foreseeable conditions during the intended voyage, and
- b) in case of a barge other than ITB, the towing equipment, including towline, winches, tow hook, chains, bridles, shackles and associated gear, is in all respects adequate and in satisfactory condition for the intended operation.
- c) in case of ITB the attachment system shall meet the requirement of a recognized organization.

GUIDANCES

Guidelines respecting compliance with the requirements of paragraph 7.2.1 are provided in Appendix A to these Standards.

7.3 OBLIGATION OF THE MASTER OF TOWING VESSEL

7.3.1 Before commencing to tow any oil barge or dangerous chemical barge, the Master of the towing vessel shall confirm by entry in the towing vessel log book:

- a) that the emergency towline required by paragraph 6.7 is aboard the oil barge and ready for immediate deployment,
- b) that the towing vessel is properly equipped to pick up the floating trailing line from the sea, and to haul aboard and properly secure the emergency towline, and
- c) that all gear provided for making fast the emergency towline to the towing vessel is compatible, one part with another.

7.4 DECK CARGO

7.4.1 GENERAL

- 7.4.1.1 Any oil barge or dangerous chemical barge that carries deck cargo must comply with the requirement of section 33 of the *Safe Working Practice Regulations*.

GUIDANCE

The Safe Working Practice Regulations can be found at the following location:

http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.c._1467

7.4.2 DECK CARGO WITH LIQUID IN BULK WITH A FLASH POINT OF 60°C OR LESS

- 7.4.2.1 Except as provided in paragraph 7.4.3, any oil barge or dangerous chemical barge that transports liquid in bulk with a flash point of 60°C or less may also carry deck cargoes, provided:

- a) a formal, documented, goal based risk assessment that complies with the principles of the IMO Formal Safety Assessment (FSA) process as documented in MSC/Circ.1023 including all later amendments, is completed, reviewed and approved by qualified Recognized Organization operating under the DSIP prior to the barge entering service;

GUIDANCE:

Information on the IMO Formal Safety Assessment can be found at the following location:

<http://www.imo.org/OurWork/HumanElement/VisionPrinciplesGoals/Documents/1023-MEPC392.pdf>

- b) the vessel's design and operations comply with the recommendations of the Formal Safety Assessment to mitigate identified risks to As Low As Reasonably Practicable (ALARP). The scope of this FSA shall include, but not be limited to, the following subject categories:
- i. the geographical area(s) of operations;
 - ii. the nature of the cargo to be carried;
 - iii. the structural strength of the barge in relation to the intended loadings;
 - iv. the proposed arrangement for separation of liquid cargo from deck cargo;
 - v. the proposed operational and maintenance procedures and the training of personnel for:

- deck cargo loading and discharge,
 - oil cargo loading and discharge, and
 - transit underway;
- vi. the proposed methods to secure deck cargo prior to departure;
- vii. the protection of deck from damage or sparking, by dunnage or other means;
- viii. the risk of fire or explosion when loading or unloading the deck cargo, and during the voyage; and
- ix. the locations of all opening and the proposed methods for securing all openings prior to the handling of any deck cargo.

7.4.2.2 If the FSA identified items which cause risks to exceed the ALARP level additional design aspects and or operational procedures shall be identified to lower the risk to the ALARP level.

GUIDANCE:

Sample Summary Sheets are provided in Appendix F.

7.4.2.3 Any oil or dangerous chemical barge carrying deck cargos along with liquid in bulk having a flash point of 60°C or less shall be maintained in class with a Recognized Organization and enrolled in the DSIP program.

7.4.2.4 The barge shall operate under a Safety Management System (SMS) approved by the Recognized Organization and all safety measures identified in the Formal Safety Assessment report related to the loading of deck cargo are incorporated in the SMS.

7.4.2.5 A request is submitted, accompanied by the result of the FSA, to the Marine Technical Review Board, for consideration. To be granted the request must demonstrate that the operation with deck cargo will provide a level of safety equivalent to the one achieved by the prohibition of equipment or materials that are spark-producing where flammable gas, vapour or dust is present in the atmosphere as prescribe by section 33 of the *Safe Working Practice Regulation*.

7.4.3 DECK CARGO WITH OIL IN BULK WITH A FLASH POINT BETWEEN 38° AND 60°C

7.4.3.1 For oil barges carrying deck cargo along with oil in bulk with a flash point of more than 38°C but not exceeding 60°C the formal safety assessment (FSA) referred to in paragraph 7.4.2 is not required, provided that:

- a) the requirement of paragraphs 7.4.4 and 7.8.3 are met;
- b) the barge operate under an approved Safety Management System (SMS); and

- c) fire prevention and protection measures are identified in the vessel Cargo Loading Manual and implemented in the vessel SMS.

7.4.4 DECK CARGO WITH LIQUID IN BULK WITH A FLASH POINT OF MORE THAN 60°C

7.4.4.1 Any oil or dangerous chemical barge may carry deck cargos along with liquid in bulk with a flash point of more than 60°C, provided that

- a) the structural strength of the barge is adequate for the intended loadings,
- b) precautions are taken to avoid any risk of fire or explosion when loading or unloading the deck cargo, and during the voyage,
- c) the deck is properly dunnaged to prevent any chafing of metal parts,
- d) the deck cargo is securely lashed or stowed prior to departure,
- e) all cargo tank openings and vents are closed prior to the handling of any deck cargo, and
- f) no deck cargo is loaded or discharged except under the direction of the person in charge of the cargo loading operation.

7.5 PACKAGED DANGEROUS GOODS

7.5.1 Notwithstanding paragraph 7.4.2 of these Standards, no packaged dangerous goods shall be carried by any oil barge except in accordance with the *Transportation of Dangerous Goods Regulations* and Division 5 of Part 1 of the *Cargo Fumigation and Tackle Regulations*.

GUIDANCE:

The Cargo, Fumigation and Tackle Regulations, can be found in the following location:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-2007-128/index.html/>

7.6 OPENING OF CARGO TANKS

7.6.1 During oil or bulk chemical cargo operations, unless a cargo tank has been gas-freed, no hatch, ullage hole, Butterworth plate or other like opening thereto shall be opened or shall remain open without a flame screen except under the supervision of the person in charge of the cargo loading operation.

7.7 SHALLOW WATER OPERATION

7.7.1 Notwithstanding any maximum draft permitted by the *Load Line Regulations*, the Authorized Representative of every oil barge and dangerous chemical barge that operates in shallow waters such as those of the Mackenzie River system shall ensure that the loaded draft provides a safe margin of bottom clearance with respect to the available water depths.

7.8 BARGE OPERATIONS IN NORTHERN CANADIAN WATERS

7.8.1 Oil Barges and Dangerous Chemical Barges operating in arctic waters, or non-arctic waters where similar ice and temperature conditions exist, shall additionally comply with the requirement of this section.

7.8.2 Oil Barges and Dangerous Chemical Barges operating in the conditions stated in paragraph 7.8.1 shall be built in accordance with the Rules of Recognized Organization for those conditions, including ice strengthening and low temperature requirements, and these conditions shall be stated in the vessel's record.

GUIDANCE:

All vessels are required to be constructed to a level adequate for their intended service, irrespective of the geographical location, as per the requirement of Section 7 of the Hull Construction Regulations. The Hull Construction Regulations can be found here:

http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1431/

7.8.3 Oil cargoes of flashpoint above 38 °C but not exceeding 60 °C may be carried in cargo tanks of an oil barge operating in the conditions stated in paragraph 7.8.1 designed for cargoes with flashpoint above 60 °C provided that the Authorized Representative and the person in charge of the oil barge:

- a) are in possession, prior to the commencement of cargo loading, of certified data that
 - i. pertains to the actual oil cargo to be carried,
 - ii. confirms the oil cargo flashpoint exceed 38 °C, and
 - iii. confirms the oil cargo contains a static dissipater additive in accordance with the applicable Canadian General Standards Board fuel specification;
- b) ensure that during active cargo operations such as bulk oil or deck cargo loading or unloading, the temperature of all parts of the oil barge

that may come into contact with the oil cargo or oil cargo vapour remains at least 10°C below the certified cargo flashpoint;

- c) except where allowed by (d), ensure that the voyage of the oil barge or dangerous chemical barge does not extend south of 60° N latitude except within Hudson Bay and Ungava Bay where the voyage may extend as far south as 58° N latitude; and
- d) where the Authorized Representative can demonstrate to the satisfaction of the local Transport Canada Technical Services office or, if the barge is enrolled in the Delegated Statutory Inspection Program (DSIP), to the appropriate Recognized Organization that similarly consistent temperatures occur in other areas and such areas shall be deemed acceptable.

7.8.4 Oil Barges and Dangerous Chemical Barges operated in arctic waters shall comply with the operational provisions of the *Arctic Waters Pollution Prevention Act* (AWPPA) and the following regulations made under the AWPPA and the CSA 2001, as applicable:

- a) Arctic Shipping Pollution Prevention Regulations (C.R.C., c. 353)
- b) Shipping Safety Control Zones Order (C.R.C., c. 356)
- c) Northern Canada Vessel Traffic Services Zone Regulations

GUIDANCE:

The Arctic Waters Pollutions Prevention Act and the regulations can be found on the following web site:

<http://laws-lois.justice.gc.ca/eng/acts/A-12/>

7.8.5 Oil Barges and Dangerous Chemical Barges operating in Arctic Waters shall comply with the following Transport Canada Marine Safety Publications, as applicable:

- a) TP 10783 - Arctic Waters Oil Transfer Guidelines.
- b) TP 11663 - Operation of Tankers and Barges in Canadian Arctic Waters.
- c) TP 12259 - Arctic Ice Regime Shipping System (AIRSS) Standards (1998).

GUIDANCE:

The Transport Canada Marine Safety Publications can be found here:

<http://www.tc.gc.ca/eng/marinesafety/tp-menu-515.htm>

7.8.6 Oil Barges and Dangerous Chemical Barges operating in Eastern Canada Vessel Traffic Services Zone shall also comply with the following Regulations and guidelines, as applicable:

- a) Eastern Canada Vessel Traffic Services Zone Regulations (SOR/89-99).
- b) TP 15163 - Joint Industry - Government Guidelines for the Control of Oil Tankers and Bulk Chemical Carriers in Ice Control Zones of Eastern Canada (2011).

GUIDANCE:

The Eastern Canada Vessel Traffic Services Zone Regulations can be found here:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-89-99/index.html>

- 7.8.7 Barges and dangerous chemical barges operating in arctic waters shall also comply with the Protection of the Arctic Marine Environment (PAME) *Arctic Council Guidelines for Transfer of Refined Oil and Oil Products in Arctic Waters (TROOP)* November 2004.

GUIDANCE: s

The PAME documentation can be found here:

<http://www.pame.is/>

- 7.8.8 Where the Authorized Representative intends to overwinter in ice an oil barge or dangerous chemical barge with cargo on board, the operation shall comply with the Transport Canada guidelines *Lay-up of petroleum barges in land-fast ice*, as applicable.

GUIDANCE:

The guidelines Lay-up of petroleum barges in land-fast ice are available through the local Transport Canada Technical Services office and should be used by operators or those preparing submissions to conduct overwintering operations. Transport Canada is currently reviewing the requirements for overwintering operations and intends to publish a new set of Guidelines for Overwintering of Tanker Vessels in the future.

7.9 TRAINING

- 7.9.1 Personnel undertaking transfer operations onboard an oil barge or dangerous chemical barge operating shall comply with the requirements of the *Marine Personnel Regulations* and with the following Transport Canada Marine Safety Publications, as applicable:

- a) TP 8129 - Training Standards for Tanker Safety, Inert Gas and Crude Oil Washing, and Supervisor of Oil Transfer Operations Personnel (2009);

- b) TP 9834 - Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants (2009).

8 TUG AND BARGE COMBINATIONS

8.1 CONSTRUCTION, INSPECTION, OPERATION AND CONNECTING SYSTEMS

8.1.1 The construction, inspection, operation and connecting systems of every integrated tug and oil barge or dangerous chemical barge combination shall comply with the additional integrated tug and barge requirements of a Recognized Organization.

8.2 NAVIGATION LIGHTS

8.2.1 Every tug and barge combination shall display the navigation lights as required by the *Collision Regulations*.

GUIDANCE:

Further details and clarifications are available can be found here:

<http://www.tc.gc.ca/eng/marinesafety/tp-tp13585-policy-menu-4286.htm>

8.3 BRIDGE VISIBILITY

8.3.1 Every tug and barge combination shall provide the person in charge of its navigation with a field of vision from the normal conning position that is at least equal to that described in SOLAS Chapter V regulation 22.1.1 to 22.1.5.

9 STORAGE/SUPPORT BARGES

9.1 BARGES USED AS OIL OR DANGEROUS CHEMICAL HANDLING FACILITIES

9.1.1 In all cases the floating portions of oil handling facilities and dangerous chemical handling facilities, such as floating fuel stations, are considered to be vessels under the *Canada Shipping Act, 2001*, even though they are stationary and not necessarily navigating or conducting voyages. In addition to the requirements contained within the *Response Organizations and Oil Handling Facilities Regulations*, the vessel shall meet the requirements of this section as applicable.

GUIDANCE:

The Response Organisations and Oil Handling Facilities Regulations can be found here:

<http://laws-lois.justice.gc.ca/eng/regulations/SOR-95-405/index.html>

9.1.2 All floating fueling stations transferring oil shall be considered as oil barges and as such must satisfy double hull requirements as stated within Section 5 or be removed from service since January 1, 2015.

9.1.3 All floating fueling stations transferring dangerous chemicals shall be considered as dangerous chemical barges, and therefore chemical tankers.

9.1.4 If over 150 gross tonnage, as an oil barge, all floating fueling stations transferring oil must also comply with the following additional measures detailed in the *Vessel Pollution and Dangerous Chemical Regulations*:

- a) hypothetical outflow subparagraph 12(1)(a)(i);
- b) size limitation and arrangements of cargo tanks subparagraph 12(1)(a)(ii);
- c) subdivision and stability subparagraph 12(1)(a)(iii);
- d) spill coamings Section 15;
- e) Canadian Oil Pollution Prevention (COPP) Certificate paragraph 25(1)(a);
- f) type Approval Certificates for oil equipment, if fitted paragraph 25(2)(b);
- g) damaged stability information paragraph 25(2)(c).

9.1.5 If carrying 10 tons or more of oil in bulk, or in tanks, if one or more of the tanks has a capacity greater than 450L, all floating fueling stations transferring oil must also comply with the Shipboard Oil Pollution

Emergency Plan (SOPEP) requirements detailed in *Vessel Pollution and Dangerous Chemical Regulations* section 27.

9.2 BARGES NOT PRIMARILY DESIGNED TO CARRY OIL

9.2.1 Any barge which was not originally built as oil barges, but operate as support/storage barges normally stationary, and does not carry a quantity of oil over 600 m³ shall not be considered an oil barge under the *Vessel Pollution and Dangerous Chemical Regulations*. As such these vessels do not need to comply with the double hull requirements contained within these Regulations.

9.2.2 Any barge referenced in paragraph 9.2.1 must have a Shipboard Oil Pollution Emergency Plan as detailed in the *Vessel Pollution and Dangerous Chemical Regulations* section 27 if they are over the limits stated in that section.

9.3 CONVERTED SINGLE HULL OIL BARGES

9.3.1 Any barge originally built as single hull oil barge, which are still used to contain any oil in their hull tanks must be considered the same as the floating fuel stations, as detailed in paragraph 9.1 and must meet the double hull requirements as stated within paragraph 5.2 or be removed from the service of transporting oil since January 1, 2015.

9.3.2 Any barge built as a single hull oil barge which no longer carries any oil as cargo in its hull tanks need not be considered as an oil barge. If it carries oil above deck or in independent hull tanks, which satisfy the double hull requirements, it need only comply with the requirement of paragraph 9.2.

1 APPENDIX “A” - GUIDANCE FOR TUG AND BARGE TOWING SYSTEMS

1.1 PREAMBLE

1.1.1 Section 7 of the Standards requires the Authorized Representative and the Master of any tug used for oil barge or dangerous chemical barge towing to ensure that the tug and towing equipment are in all respects capable of maintaining safe control over the oil barge in all foreseeable conditions during the intended voyage.

1.1.2 Safe tug-barge matching decisions require the assessment of a number of variables related to the characteristics of the vessels concerned, the weather and navigational conditions likely to be encountered, the availability of safe refuge and the experience of the crew. The following guidelines are provided to assist rather than to direct the tug-barge matching process, it being emphasized that operational and environmental safety must be the prime concerns when tug-barge assignment decisions are made.

1.2 PRIMARY TOWLINES

1.2.1 The bollard pull of every tug that tows an oil barge or dangerous chemical barge on Unlimited Voyages, Near Coastal Voyages Class 1 or Class 2 should be determined by a recognized test procedure, and checked or re-tested whenever any changes are made to the propulsion system that affect bollard pull.

1.2.2 The towing system should:

- a) meet the strength criteria given in Table 1, which were derived from successful Canadian towing practice,
- b) be supplied to the tug with manufacturer's certificates which attest to the strength rating thereof, and
- c) incorporate surge chains, or equivalent, as may be required, to dampen short duration peak loads.

1.2.3 The value indicated in Table 1 should be considered as the minimum acceptable, but in no case should the breaking strength be less than the minimums stated by a Recognized Organization and IMO MSC Circ. 1175 and 884.

GUIDANCE:

The above IMO MSC Circulars are available from the following IMO website. Note that a member of the public would be required to register to a public account to gain access. :

<https://webaccounts.imo.org/>

Table 1 - Tug Bollard Pull vs. Towline Breaking Strength

VOYAGE DESCRIPTION	BOLLARD PULL OF TUG (BP) in tons	BREAKING STRENGTH OF TOWLINE in tons
EXPOSED COASTAL TOW	≤ 32 te	4.5 x BP
SHELTERED COASTAL TOWS	> 32 te	144 + 0.7 (BP -32)
PROTECTED WATER TOWS	≤ 35 te	4 x BP
	> 35 te	140 + 0.75 (BP -35)
	≤ 35 te	3 x BP
	> 35 te	105 + 1.15 (BP -35)

1.2.4 The breaking strength of chains, bridles and other gear used in making up the towline assembly should be consistent with the breaking strength of the towline. Shackles and other devices used to join the components of the towline assembly should have a breaking strength equal to 125% or greater of the towline.

1.2.5 A formal towline inspection schedule and procedure should be established for every tug, to provide for:

- a) visual inspection of the section of the towline to be used, and of all the associated equipment prior to each voyage,
- b) regular towline lubrication,
- c) towline testing, end-for-end rotation, and replacement, and
- d) sign-off by the officer responsible for each towline inspection or maintenance procedure.

1.3 BOLLARD PULL OF TOWING VESSEL

1.3.1 The following empirical formula is widely used for determining the required bollard pull for any type of tow:

$$BP = \left\{ \frac{\Delta^{2/3} V^3}{120 \times 60} + (0.06B \times D_1) \right\} \times K$$

where:

BP = required bollard pull (tons)

Δ =	full displacement of towed vessel (tons)
V =	tow speed (knots)
B =	breadth of towed vessel (metres)
D_I =	depth of the exposed transverse section of the towed vessel including deck cargo, measured above the waterline (metres)
K =	a factor that reflects potential weather and sea conditions

1.3.2 An examination of Canadian Coastal towing practice suggests that in those specific waters, a record of safe towing has been established using the following K values at a towing speed of six knots:

- a) for exposed coastal tows $K = 1.5$ to 2.0
- b) for sheltered coastal tows $K = 0.5$ to 1.5
- c) for protected water tows $K = 0.5$

1.3.3 Exposed coastal should be interpreted as voyages where the barge is always north of 6° N and within 200 nautical miles from shore or above the continental shelf.

1.3.4 Sheltered Coastal should be interpreted as voyages where the barge is always less than 120 miles from shore and is never more than 200 miles from a suitable port of refuge.

1.3.5 Protected Waters should be interpreted as voyages conducted solely on Sheltered Waters as defined within the *Vessel Certificates Regulations*.

1.3.6 The Authorized Representative may also propose to use towing equipment in accordance with an internationally industry-recognized standard, suitable for the environmental conditions, such as those published by Noble Denton:

- GL-Noble Denton: - 0021/ND Rev 10 – 14 December 2015 Guidelines for the Approval of Towing Vessels
- GL Noble Denton: - 0030/ND Rev 6.1 – 28 June 2016 Guidelines for Marine Transportations

GUIDANCE:

The above guidelines are available from:

<https://www.dnvgl.com/rules-standards/noble-denton-maa-rules-and-guidelines.html>

GUIDANCE:

Transport Canada does not currently require that tugs meet established weather or towline heel criteria. Given the hazardous nature of cargoes

pushed, it is recommended that all tugs at minimum meet the stability requirements of a Recognized Organization.

1.4 TWO INDEPENDANT MEANS OF PROPULSION

1.4.1 Every tug used for oil barge or dangerous chemical barge towing should be fitted with at least two independent means of forward propulsion, such that any one propulsion system is capable of providing sufficient thrust to maintain safe control of the oil barge in all anticipated navigational conditions.

1.5 SINGLE TOWING

1.5.1 Oil barges and dangerous chemical barges should be towed singly, except that, where particular circumstances make such restriction impractical, a tow may consist of more than one oil barge provided the operational and environmental safety of the intended service is not impaired and specially approved by the Minister.

1.6 TUG FENDERS

1.6.1 Every tug used for handling oil barges should be thoroughly fendered, with no protruding steel structure.

1.7 EMERGENCY TOWLINES

1.7.1 Every emergency towline assembly should consist of:

- a) flexible steel wire rope towline of length sufficient, as a minimum, to extend past the transom of the barge and with a breaking strength not less than three times the required bollard pull of the towing vessel, and
- b) messenger and trailing lines of size and length that ensure the safe pick-up and handling of the wire rope towline to the towing vessel, so arranged that the trailing line is:
 - i. of sufficient length to extend at least 35 m astern of the oil barge, and
 - ii. provided at its trailing end with a clearly visible marker buoy, with sufficient reflective tape, or other equivalent means, such that the buoy can be readily identified in the dark.

APPENDIX “B” - OPERATIONAL PROCEDURES AND REQUIREMENTS

1.1 GROUP I - BARGES CARRYING OIL OR DANGEROUS CHEMICALS IN BULK

1.1.1 Group I barges shall comply with the requirements of this Standard.

1.2 GROUP II - BARGES USED AS OIL AND DANGEROUS CHEMICAL HANDLING FACILITIES

1.2.1 Group II oil barges shall comply with the requirements of this Standard as detailed in paragraph 9.1.

1.3 GROUP III - SUPPORT/STORAGE BARGES

1.3.1 Group III barges are best characterized as barges which:

- a) are often converted flat deck barges, which were previously used transporting for cargos;
- b) are temporarily or permanently moored, and may be moved to new locations multiple times during the year. Examples include:
 - i. helicopter logging support,
 - ii. fishing camps,
 - iii. aquaculture support;
- c) oil storage intended to support operational fuel needs, such as helicopter fuel (logging), work boats, cooking and heating, etc;
- d) may have self-contained living quarters on board for personnel. Examples include:
 - i. logging/resource industry personnel,
 - ii. catering staff,
 - iii. helicopter pilots/mechanics;
- e) currently require no certification or inspections by Transport Canada.

1.3.2 Group III barges which contain 10 tonnes or more of oil in bulk, or in tanks if one or more of the tanks has a capacity greater than 450 L, in one of the following arrangements should meet the requirements of paragraph 1.3.4 :

- a) oil contained within structural hull tank(s);
- b) oil contained within independent tank(s) within existing hull compartment; or
- c) oil contained within independent tank(s) mounted on deck.

1.3.3 Group III barges which contain dangerous chemicals in bulk, in one of the following arrangements should meet the requirements of paragraph 1.3.4 :

- a) dangerous chemicals contained within structural hull tank(s);
- b) dangerous chemicals contained within independent tank(s) within existing hull compartment; or
- c) dangerous chemicals contained within independent tank(s) mounted on deck.

1.3.4 Group III barges should:

- a) be adequately moored for the expected environmental conditions;
- b) be maintained in accordance with best marine practices and inspected on a yearly basis by an accredited marine surveyor;
- c) have oil and dangerous chemical transfer operations conducted by personnel trained in accordance with the requirement of paragraph 7.9;
- d) have all oil and dangerous chemicals should be removed, except for unpumpable residuals, before movement to a new location. These residuals should be recorded prior to towing;
- e) have Intrinsically Safe electrical equipment within hazardous zones, except for lighting which is not required if restricted to daylight operations;
- f) if oil is carried onboard in manner identified in 1.3.2, have an arrangement with an Oil Spill Response Agency;
- g) if oil is carried onboard in manner identified in 1.3.2, have a Shipboard Oil Pollution Emergency Plan (SOPEP) complying with the requirements of section 27 of the *Vessel Pollution and Dangerous Chemical Regulations*;
- h) if oil is carried onboard in manner identified in 1.3.3, have an Shipboard Marine Pollution Emergency Plan (SMPEP) complying with the requirements section 27 of the *Vessel Pollution and Dangerous Chemical Regulations*;
- i) carry appropriate oil and chemical spill equipment;

- j) carry appropriate marine insurance and have condition reports satisfactory to the Underwriters;
- k) train personnel on board in safety and pollution prevention procedures as well as barge specific operating procedures;
- l) address liability requirements; and
- m) have all deck cargo appropriately lashed and secured according to best practices and taking into account the anticipated cargo load, the barge structural strength, motion and acceleration and the environmental conditions. Where applicable the provisions of the *Cargo, Fumigation and Tackle Regulations* shall also be complied with.

APPENDIX “C” - INSPECTION STANDARDS FOR EXISTING BARGES AND NEW BARGES OF LESS THAN 24 METRES IN LENGTH

1.1 PREAMBLE

- 1.1.1 The following Appendix contains wording originally published 1995 as Part III: Periodical Inspections in Standards and Guidelines for the Construction, Inspection and Operation of Barges that Carry Oil in Bulk – TP 11960. This wording is retained for use by existing barges, which was not removed from services on January 1, 2015 as part of the implementation schedule for double hull requirement and have not been placed in class with a Recognized Organization.

1.2 PERIODICAL INSPECTION

1.2.1 PERIODICAL INSPECTIONS - GENERAL

- 1.2.1.1 Except where otherwise provided by these Standards, every oil barge shall be inspected:
- a) annually, in accordance with the requirements of paragraph 1.4;
 - b) quinquennially, in accordance with the requirements of paragraph 1.5; and
 - c) out of the water, in accordance with paragraphs 1.6 and 1.7
 - i. in the case of a barge that operates only in salt water or that spends less than six months per year in fresh water, on two occasions in any five year period such that no more than three years elapse between any two inspections, and
 - ii. in the case of an oil barge that spends at least six months every year in fresh water, at five year intervals.
- 1.2.1.2 Notwithstanding paragraph 1.2.1.1, no repairs or alterations which affect the operational or environmental safety of any oil barge shall be made without the approval of the Minister.

1.3 ISSUE AND EXTENSION OF SHORT TERM CERTIFICATES

1.3.1 Notwithstanding paragraph 1.2.1, where an inspector is satisfied from such inspection as is possible while the oil barge is afloat, and without opening up all compartments, that the hull, machinery and equipment are seaworthy and environmentally safe for the intended service, the inspector may issue or extend a short term inspection certificate or letter of compliance for a period not exceeding:

- a) 2 months beyond the due date of the periodic inspection, or
- b) 5 months beyond the due date of the periodic inspection if authorized to do so by the Minister provided that such action does not contravene any requirement of an applicable load line regulation referenced paragraph 3.1.

1.3.2 A short term inspection certificate or letter of compliance issued or extended up to the maximum period allowed under this section shall not be renewed or further extended unless:

- a) the periodic inspection is completed, or
- b) permission is granted by the Board.

1.4 ANNUAL INSPECTION REQUIREMENTS

The annual inspection referred to in paragraph 1.2.1.1 shall be carried out as follows:

1.4.1 The oil barge shall be inspected externally and internally as far as is possible without extensive opening up except as provided by paragraph 1.4.2; tests, if found necessary, shall be conducted and the inspector shall be satisfied that the hull, machinery and equipment are:

- a) in compliance with all applicable regulatory standards, and
- b) in satisfactory condition for the intended voyages and cargoes.

1.4.2 All side tanks, rakes, cofferdams and other void spaces that are not connected to a fixed bilge system shall be opened and checked from on-deck for the presence of water or oil indicating hull damage or cargo tank leakage.

1.4.3 If required by the inspector as a result of the on-deck check, tanks shall be prepared for personnel entry in accordance with the *Safe Working Practices Regulations* and the *Maritime Occupational Health and Safety Regulations*, and subjected to internal inspection.

1.4.4 Notwithstanding the requirements of paragraph 1.4.1.2, side tanks, rakes, cofferdams and other void spaces that are not connected to a fixed bilge system need not be checked by an inspector provided:

- a) the inspector is satisfied with the structural condition of the oil barge after completion of the inspections required by subsection 1.4.1, and
- b) the owner or his appointed representative has submitted a statement certifying that such side tanks, rakes, cofferdams and other void spaces were examined and found satisfactory by a competent person not more than 3 months prior to the date of the Annual Inspection.

1.4.5 Special attention shall be given to:

- a) potential sources of ignition in or near the cargo pump room and cargo area, and
- b) those parts of the hull structure that are particularly subject to deterioration due to chafing, abrasion and like causes.

1.4.6 The inspection shall include an examination of the following items:

- a) weathertight, watertight and gastight fittings and closing appliances, including pump room bulkhead seals;
- b) structural fire protection requirements;
- c) machinery and associated systems;
- d) electrical installation;
- e) ventilation systems;
- f) tank venting arrangements, including pressure/vacuum valves and flame screens;
- g) cargo handling system;
- h) towing attachments and emergency towline;
- i) windlass, anchors and cables when fitted;
- j) firefighting equipment;
- k) navigation lights and shapes required by the Collision Regulations; and
- l) cargo gear.

1.5 QUINQUENNIAL INSPECTION REQUIREMENTS

The quinquennial inspection referred to in paragraph 1.2.1.1 shall be carried out as follows:

- 1.5.1 The oil barge shall be inspected out of the water in accordance with paragraph 1.6.
- 1.5.2 Tanks, rakes, voids and cofferdams shall be prepared for personnel entry in accordance with the *Safe Working Practices Regulations* and the *Maritime Occupational Health and Safety Regulations*, cleaned as necessary to reveal any structural deterioration, and means provided for access to the upper parts as required for examination and thickness gauging.
- 1.5.3 The hull structure shall be gauged as required by paragraphs 1.8, 1.9 and 1.10.
- 1.5.4 A complete and satisfactory inspection of all internal hull structure shall be made.
- 1.5.5 All piping and fittings within the tanks shall be examined.
- 1.5.6 All cargo tanks located against the side or bottom shell, and all cargo tank bulkheads located at the ends of the cargo tank area or forming the boundaries between cargo tanks and adjacent side or bottom tanks shall be tested:
 - a) with a head of water to the top of the overflow,
 - b) as per subpart 180.407 of Title 49 of the *Code of Federal Regulations* of the United States, as amended, or
 - c) as per an internationally acceptable standards for pressure testing cargo tanks.
- 1.5.7 Independent cargo tanks shall be inspected in the following manner:
 - a) tanks shall be prepared for inspection in accordance with the requirements of paragraph 1.5.2;
 - b) a complete and satisfactory inspection of all internal structure shall be made;
 - c) where there is evidence of corrosion, the plating or structure is to be gauged to determine thickness;
 - d) all tank supports and foundations shall be closely examined;
 - e) all piping and fittings shall be examined; and
 - f) the tanks shall be tested

- i. by a head of water to the top of the overflow,
- ii. as per subpart 180.407 of Title 49 of the *Code of Federal Regulations* of the United States, as amended; or
- iii. as per an internationally acceptable standards for pressure testing cargo tanks.

1.6 OUT OF WATER INSPECTION REQUIREMENTS

Except where otherwise provided by paragraph 1.7, at every out of water inspection referred to in paragraph 1.2.1.1:

- 1.6.1 the oil barge shall be hauled out of the water, or placed on a drydock or slipway, on blocks of sufficient height to permit easy access for inspection purposes;
- 1.6.2 staging shall be provided to the inspector's satisfaction to facilitate proper inspection of the hull and appendages;
- 1.6.3 the exterior of the hull and its appendages shall be cleaned as necessary, inspected and placed in satisfactory condition, special attention being given to those parts likely to experience contact with docks, sea or river bottoms and other floating equipment.
- 1.6.4 all sea chests, sea valves and other through-hull fittings:
 - a) Shall be examined and found satisfactory; and
 - b) At 5 year intervals, such valves & fittings shall be opened up for inspection purposes.

1.7 IN-WATER SURVEY

- 1.7.1 Notwithstanding the requirements of paragraph 1.6, every oil barge that is:
 - a) less than 15 years old;
 - b) constructed of a material other than wood;
 - c) fitted with an effective hull protection system; and
 - d) required to be inspected out of the water on two occasions in every five year period,may be considered by the Minister for in-water surveys instead of those alternate, out of water inspections that occur between the quinquennial inspections described in paragraph 1.5.
- 1.7.2 Any request made by an owner under paragraph 1.7.1 must be received by the Minister at least one month prior to each scheduled out of water

inspection for which an in-water survey is proposed, and shall be accompanied by the following information:

- a) the location at which the proposed in-water survey will take place;
- b) details of the equipment, experience and management structure of the diving contractor who will carry out the survey;
- c) the procedures that will be followed in carrying out the survey;
- d) confirmation that the oil barge will be in the lightship condition at time of survey, so that as much of the hull as possible may be directly examined by the inspector;
- e) confirmation that the underwater portion of the oil barge will be sufficiently clean to permit satisfactory survey;
- f) the method proposed to accurately determine the diver's location relative to the hull;
- g) the means that will be provided for the examination of sea chests and through-hull fittings; and
- h) details of the hull protection system fitted to the oil barge, and the means that will be provided to renew deteriorated anodes.

1.7.3 Oil barges that otherwise qualify under paragraph 1.7.1 for in-water survey instead of alternate out of water inspections but are more than 15 years old may be considered by the Minister for participation in the in-water survey program provided:

- a) a formal request is submitted by the owner at least six weeks prior to each scheduled inspection for which an in-water survey is proposed; and
- b) inspection records and structural thickness gaugings obtained at previous inspections confirm the hull structure to be in satisfactory condition.

1.8 THICKNESS GAUGING - GENERAL

Thickness gauging procedures shall comply with the following requirements:

1.8.1 Paint and rust at the gauging spot shall be removed to bare metal before readings are taken or measurements can be taken without removing paint and coating if the equipment used is capable of gauging through them;

1.8.2 Gauging shall be carried out by an approved means;

1.8.3 A record shall be kept of the location and thickness of every gauging; and

- 1.8.4 Where any part is found to be defective, repairs shall be carried out to the satisfaction of the marine safety inspector.

1.9 THICKNESS GAUGING - SALT WATER BARGES

For oil barges that operate only in salt water, or that spend less than six months annually in fresh water, thickness gauging shall comply with the following requirements:

- 1.9.1 At quinquennial inspections due when the oil barge is:

- a) 5 years old; and
- b) 10 years old,

gauging shall take place at any location where, owing to the condition of the barge, the inspector deems it necessary;

- 1.9.2 At the quinquennial inspection due when the oil barge is fifteen years old, gauging shall take place:

- a) In every plate at two girths of the shell, deck and bottom within the midships half length in way of two different cargo tanks;
- b) in the internal strength members near those girthing positions, including frames, cross ties and bulkheads; and
- c) at any other location where, owing to the condition of the barge, the inspector deems it necessary; and

- 1.9.3 At the quinquennial inspection due when the oil barge is twenty years old, and at all subsequent quinquennial inspections, gauging shall take place;

- a) In every plate at three girths of the shell, deck and bottom within the midships half length;
- b) In the internal strength members near those girthing positions, including frames, cross ties and bulkheads; and
- c) At any other location where, owing to the condition of the barge, the inspector deems it necessary.

1.10 THICKNESS GAUGING - FRESH WATER BARGES

For oil barges that spend at least six months annually in fresh water, thickness gauging shall comply with the following requirements:

- 1.10.1 At every quinquennial inspection, gauging shall take place at any location where, owing to the condition of the barge, the inspector deems it necessary, and

1.10.2 At the quinquennial inspection due when the oil barge is twenty years old, and at alternate quinquennial inspections thereafter, gauging shall take place

- a) In every plate at three girths of the shell, deck and bottom within the midships half length; and
- b) In the internal strength members near those girthing positions, including frames, cross ties and bulkheads.

APPENDIX“D” - LETTER OF COMPLIANCE FOR OIL BARGE

Letter of Compliance For a Non Self-Propelled Oil Barge

[NAME OF VESSEL]
[OFFICIAL NUMBER]
[GROSS TONNAGE]
[PORT OF REGISTRY]

THIS IS TO CERTIFY:

1. That the above mentioned oil barge has been duly inspected in accordance with the provisions of the *Standards for the Construction, Inspection and Operation of Barges that Carry Bulk Oil or Dangerous Chemicals*;
2. That the above mentioned oil barge has been issued all necessary certificates required by the *Vessel Certificates Regulations*, the *Vessel Pollution and Dangerous Chemical Regulations* and other applicable Transport Canada regulations.

LIMITATIONS: This Letter of Compliance shall be valid only:

- a) for [TYPE OF VOYAGE] voyages;
- b) for use as part of an integrated tug and barge unit with the following tugs: [NAME OF TUGS]
- c) for the carriage of bulk oil cargo of flashpoint by closed cup test of [DEGREES] having a Reid vapour pressure below atmospheric pressure.

THIS LETTER OF COMPLIANCE shall remain in force until the day of [DAY], [MONTH] [YEAR].

Marine Safety Inspector

Port and Date of Issue

APPENDIX“E” - LETTER OF COMPLIANCE FOR A NON SELF-PROPELLED DANGEROUS CHEMICAL BARGE

Letter of Compliance For a Non Self-Propelled Dangerous Chemical Barge

[NAME OF VESSEL]
[OFFICIAL NUMBER]
[GROSS TONNAGE]
[PORT OF REGISTRY]

THIS IS TO CERTIFY:

1. That the above mentioned dangerous chemical barge has been duly inspected in accordance with the provisions of the *Standards for the Construction, Inspection and Operation of Barges that Carry Bulk Oil or Dangerous Chemicals*.
2. That the above mentioned dangerous chemical barge has been issued all necessary certificates required by the *Vessel Certificates Regulations, Vessel Pollution and Dangerous Chemical Regulations* and other applicable Transport Canada regulations.

LIMITATIONS: This Letter of Compliance shall be valid only:

- a) for [TYPE OF VOYAGES] voyages;
- b) for use as part of an integrated tug and barge unit with the following tugs: [NAME OF TUGS]
- c) for the carriage of those bulk dangerous chemicals which are listed in the respective certificates issued to the vessel under the applicable provisions of the *Vessel Pollution and Dangerous Chemicals Regulations*.

THIS LETTER OF COMPLIANCE shall remain in force until the day of [DAY], [MONTH] [YEAR].

Marine Safety Inspector

Port and Date of Issue

APPENDIX“F” - DECK CARGO FORMALIZED SAFETY ASSESMENT WORKSHEETS

1.1 RESERVED