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NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 22-14

Subj: GUIDELINES FOR QUALIFICATION FOR STCW ENDORSEMENTS FOR OFFICERS AND RATINGS ON OIL, CHEMICAL, AND LIQUEFIED GAS TANK VESSELS

Ref: (a) 46 Code of Federal Regulations (CFR) Part 13
(b) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW), Regulations V/1-1, V/1-2 and Sections A-V/1-1-1, A-V/1-1-2, A-V/1-1-3, A-V/1-2-1, A-V/1-2-2 of STCW Code, incorporated into regulations at 46 CFR 13.103

1. PURPOSE. This Navigation and Vessel Inspection Circular (NVIC) provides guidance for qualification for STCW endorsements for officers and ratings serving on oil, chemical, and liquefied gas tank vessels.

2. ACTION. The Coast Guard will use this NVIC and 46 CFR Part 13 to determine if mariners are qualified for STCW endorsements for Advanced Oil Tanker Cargo Operations (46 CFR 13.603); Advanced Chemical Tanker Cargo Operations (46 CFR 13.605); Advanced Liquefied Gas Tanker Cargo Operations (46 CFR 13.607); Basic Oil and Chemical Tanker Cargo Operations (46 CFR 13.609); and Basic Liquefied Gas Tanker Cargo Operations (46 CFR 13.611). Officers in Charge, Marine Inspection (OCMIs) should bring this NVIC to the attention of the maritime industry within their zones of responsibility. This NVIC is available on the World Wide Web at http://www.uscg.mil/hq/g-m/nvic/. The Coast Guard will distribute it by electronic means only.

3. DIRECTIVES AFFECTED. CG-CVC Policy Letter 12-07, *Guidance on Issuance of Endorsements and Approval of Training to Meet the 2010 Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as Amended (STCW),* is cancelled.

DISTRIBUTION – SDL No. 162

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4. BACKGROUND.

   a. Regulation V/1 of the STCW sets forth minimum requirements for mariners serving on oil, chemical, and liquefied gas tank vessels.

   b. The International Maritime Organization (IMO) amended the STCW Convention and STCW Code on June 25, 2010. These amendments entered into force for all ratifying countries, including the United States, on January 1, 2012. Specifically, the 2010 amendments to the STCW Convention and Code added competency standards for mariners serving on oil, chemical and liquefied gas tank vessels.

   c. The Convention is not self-implementing; therefore, the U.S., as a signatory to the STCW Convention, initiated regulatory changes to ensure full implementation of the amendments to the STCW Convention and STCW Code. The U.S. implements these provisions under the Convention and under the authority of domestic laws in United States Code, Titles 33 and 46. The Coast Guard published a final rule in the Federal Register on December 24, 2013, (78 FR 77796) that implements the STCW Convention and STCW Code, including the 2010 amendments. This rule became effective on March 24, 2014. The Coast Guard is publishing this NVIC to provide guidance on complying with the new regulations.

5. DISCUSSION.

   a. As specified in 46 CFR 15.860 and Regulations V/1-1 and V/1-2 of the STCW Convention, mariners with immediate responsibility for cargo related operations must hold an STCW endorsement for Advanced Oil Tanker Cargo Operations, Advanced Chemical Tanker Cargo Operations, and/or Advanced Liquefied Gas Tanker Cargo Operations, as appropriate.

   b. Regulation V/1-2 of the STCW Convention and 46 CFR 15.860 also specifies that mariners with assigned specific duties and responsibilities for cargo related operations must hold an STCW endorsement for Basic Oil and Chemical Tanker Cargo Operations and/or Basic Liquefied Gas Tanker Cargo Operations, as appropriate.

   c. Policy regarding STCW endorsements for mariners serving on tank vessels is contained in this NVIC. Enclosure (1) provides specific guidance for each endorsement, Enclosures (2) and (3) are sample letters that can be used to document demonstration of competence. Enclosure (4) contains relevant excerpts from the STCW Convention and STCW Code, these are provided for information only.

6. DISCLAIMER. This guidance is not a substitute for applicable legal requirements, nor is it itself a regulation. It is not intended to nor does it impose legally-binding requirements on any party. It represents the Coast Guard's current thinking on this topic and is issued for guidance purposes to outline methods of best practice for compliance to the applicable law. You can use an alternative approach if the approach satisfies the requirements of the applicable statutes and regulations.

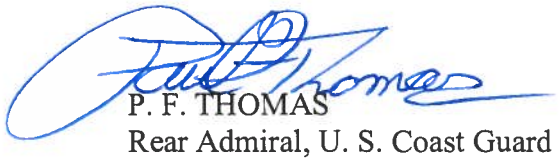
7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS.

   a. The development of this NVIC and the general policies contained within it have been thoroughly reviewed by the originating office, and are categorically excluded (CE) under current USCG CE # 33 from further environmental analysis, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1 D. Because this NVIC implements, without substantive change, the applicable Commandant Instruction or other federal agency regulations, procedures, manuals, and other guidance documents, Coast Guard categorical exclusion #33 is appropriate.

   b. This NVIC will not have any of the following: significant cumulative impacts on the human environment; substantial controversy or substantial change to existing environmental conditions; or inconsistencies with any Federal, State, or local laws or administrative determinations relating to the environment.

8. RECORDS MANAGEMENT CONSIDERATIONS. This NVIC has been thoroughly reviewed during the directives clearance process, and it has been determined there are no further records scheduling requirements, in accordance with Federal Records Act, 44 United States Code (U.S.C.) 3101 et seq., National Archives and Record Administrations requirements, and Information and Life Cycle Management Manual, COMDTINST M5212.12 (series). This policy does not create a significant or substantial change to existing records management requirements.

9. QUESTIONS. All questions regarding implementation of this Circular should be directed to the Mariner Credentialing Program Policy Division (CG-CVC-4) at (202) 372-2357 or MMCPolicy@uscg.mil. To obtain approval for tank vessel courses or programs, contact the NMC at (888) 427-5662 or IAskNMC@uscg.mil.



P. F. THOMAS
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Prevention Policy

Encl: (1) Discussion of Requirements for STCW Tanker Operations Endorsements
(2) Sample Tanker Service and Cargo Transfer Letter
(3) Sample Tankerman-Engineer Letter
(4) Excerpts from the STCW Convention and STCW Code

DISCUSSION OF REQUIREMENTS FOR STCW TANKER OPERATIONS ENDORSEMENTS

1. GENERAL.

   a. This enclosure provides guidance for mariners to qualify for the following International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) endorsements:

      1) Advanced Oil Tanker Cargo Operations (46 Code of Federal Regulations (CFR) 13.603);

      2) Advanced Chemical Tanker Cargo Operations (46 CFR 13.605);

      3) Advanced Liquefied Gas Tanker Cargo Operations (46 CFR 13.607);

      4) Basic Oil and Chemical Tanker Cargo Operations (46 CFR 13.609); and

      5) Basic Liquefied Gas Tanker Cargo Operations (46 CFR 13.611).

   b. As specified in 46 CFR 15.860 and STCW Regulations V/1-1 and V/1-2:

      1) Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on liquefied gas tankers or oil and/or chemical tankers must hold an STCW endorsement for Basic Liquefied Gas Tanker Cargo Operations or Basic Oil and Chemical Tanker Cargo Operations, as appropriate to the vessel.

      2) Masters, Chief Mates, and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning, or other cargo-related operations on oil, chemical, or liquefied gas tankers must hold an STCW endorsement for Advanced Oil Tanker Cargo Operations, Advanced Chemical Tanker Cargo Operations, or Advanced Liquefied Gas Tanker Cargo Operations as appropriate to the vessel.

      3) Chief Engineer and First Assistant Engineer officers, and any person with immediate responsibility for maintaining both the cargo systems and equipment for the transfer of liquid cargoes in bulk on oil tankers must hold an STCW endorsement for Advanced Oil Tanker Cargo Operations, Advanced Chemical Tanker Cargo Operations, or Advanced Liquefied Gas Tanker Cargo Operations as appropriate to the vessel. These endorsements may have a limitation to maintenance and repair of cargo equipment. If a mariner holds an endorsement with this limitation, they may not act as the person in charge (PIC).

   c. As specified in 46 CFR 15.860(h), mariners with national tankerman endorsements are required to possess the appropriate STCW tanker cargo operation endorsements as listed in the table below when working aboard tank vessels certified for voyages beyond the boundary line, which is described in 46 CFR Part 7. Mariners are reminded that they are

still bound by any limitations and restrictions on their national tankerman endorsements, even if these limitations and restrictions do not appear on their STCW endorsements.

d. Although mariners are not required to have current Basic Training to qualify for STCW tanker cargo operation endorsements, in order to serve on a seagoing tank vessel of 500 GT or more, mariners must hold the appropriate STCW tanker cargo operation endorsement and have currently valid Basic Training (46 CFR 15.1105).

National Endorsements and STCW Equivalents		
National Endorsement	**STCW Endorsement**	**Limitations/Comments**
Tankerman-Assistant DL	Basic Oil and Chemical Tanker Operations	STCW endorsement is a single endorsement valid for service on both oil tankers and chemical tankers.
Tankerman-Assistant LG	Basic Liquefied Gas Tanker Operations	
Tankerman-PIC DL	Advanced Oil Tanker Operations *or* Advanced Chemical Tanker Operations	Mariners should have the endorsement appropriate to the vessel's cargo.
Tankerman-PIC LG	Advanced Liquefied Gas Tanker Operations	---
Tankerman-PIC (Barge) DL	Advanced Oil Tanker Operations *or* Advanced Chemical Tanker Operations	Mariners should have the endorsement appropriate to the vessel's cargo. STCW endorsement will have a limitation to non-self propelled vessels.
Tankerman-PIC (Barge) LG	Advanced Liquefied Gas Tanker Operations	STCW endorsement will have a limitation to non-self propelled vessels.
Tankerman-Engineer DL	Advanced Oil Tanker Operations *or* Advanced Chemical Tanker Operations	Mariners should have the endorsement appropriate to the vessel's cargo. STCW endorsement will have a limitation to maintenance and repair of cargo equipment.
Tankerman-Engineer LG	Advanced Liquefied Gas Tanker Operations	STCW endorsement will have a limitation to maintenance and repair of cargo equipment.

2. QUALIFICATION REQUIREMENTS FOR BASIC OIL AND CHEMICAL TANKER CARGO OPERATIONS ENDORSEMENTS.

   a. As specified in 46 CR 13.609, to qualify for an STCW endorsement for basic oil and chemical tanker operations, a mariner must qualify for a national endorsement as Tankerman-Assistant DL (46 CFR 13.401) and provide evidence of meeting the standards of competence in Table A-V/1-1-1 of the STCW Code.

   b. In order for mariners to qualify for the national endorsement of Tankerman-Assistant DL, a mariner must present evidence of:

      1) Completion of an approved Basic Fire Fighting or Tankerman Fire Fighting course within 5 years of the date of application for the endorsement, unless he or she has previously submitted such a certificate for another endorsement on their Merchant Mariner Credential (MMC); and

      2) Either:

         i) Completion of a Coast Guard approved *Tankship: Familiarization (Dangerous Liquids)* course within the previous 5 years; or

         ii) At least 90 days of deck service on tank ships or self-propelled tank vessels certified to carry dangerous liquids and successfully complete a professional examination on the topics identified in 46 CFR Table 13.121(e).

   c. Mariners who complete the course or professional examination required for the national endorsement for Tankerman-Assistant DL will be considered to have met standards of competence in Table A-V/1-1-1 of the STCW Code.

   d. As specified in 46 CFR 13.609(b), mariners holding valid Tankerman-Assistant DL or Tankerman-Engineer endorsements issued prior to March 24, 2014, may be issued an STCW endorsement for basic oil and chemical tanker cargo operations without meeting the requirements of paragraph (2)(a) of this enclosure. On or after March 24, 2014, all mariners applying for an original endorsement in basic oil or chemical tanker cargo operations must meet the requirements in paragraph (2)(a) of this enclosure.

3. QUALIFICATION REQUIREMENTS FOR BASIC LIQUEFIED GAS TANKER CARGO OPERATIONS ENDORSEMENTS.

   a. As specified in 46 CFR 13.611, to qualify for an STCW endorsement for basic liquefied gas tanker operations, a mariner must qualify for a national endorsement as Tankerman-Assistant Liquefied Gases (LG) (46 CFR 13.401) and provide evidence of meeting the standards of competence in Table A-V/1-2-1 of the STCW Code.

   b. In order for mariners to qualify for the national endorsement of Tankerman-Assistant LG, a mariner must present evidence of:

1) Completion of an approved Basic Fire Fighting or Tankerman Fire Fighting course within 5 years of the date of application for the endorsement, unless he or she has previously submitted such a certificate for another endorsement on their MMC; and

2) Either:

i) Completion of a Coast Guard approved *Tankship: Familiarization (Liquefied Gases)* course within the previous 5 years; or

ii) At least 90 days of deck service on tank ships or self-propelled tank vessels certified to carry liquefied gases and successfully complete a professional examination for the topics identified in 46 CFR Table 13.121(e).

c. Mariners who complete the course or professional examination required for the national endorsement for Tankerman-Assistant LG will be considered to have met standards of competence in Table A-V/1-2-1 of the STCW Code.

d. As specified in 13.611(b), mariners holding a valid Tankerman-Assistant LG or Tankerman-Engineer endorsement issued prior to March 24, 2014, will be issued an STCW endorsement for basic liquefied gas tanker cargo operations without meeting the requirements of paragraph (3)(a), above. On or after March 24, 2014, all mariners applying for an original endorsement in basic liquefied gas tanker cargo operations must meet the requirements in paragraph (3)(a) of this enclosure.

4. QUALIFICATION REQUIREMENTS FOR ADVANCED OIL TANKER CARGO OPERATIONS ENDORSEMENTS.

a. As specified in 46 CFR 13.603, to qualify for an STCW endorsement for advanced oil tanker operations, a mariner must:

1) Qualify for a national endorsement as Tankerman-PIC DL (46 CFR 13.201);

2) Provide evidence of meeting the standards of competence in Table A-V/1-1-2 of the STCW Code; and

3) Provide evidence of 90 days of sea service onboard oil tankers. As defined in 46 CFR 10.107, for the purposes of qualifying for this endorsement, an “oil tanker” is a tank vessel that is certificated to carry oil cargoes. This includes product tankers that are certificated to carry both oil and chemical cargoes. The Coast Guard will accept service submitted to qualify for the national endorsement of Tankerman-PIC DL, provided that the service was on oil tankers.

b. As specified in 46 CFR 13.603(a)(2), mariners must demonstrate the standards of competence in Table A-V/1-1-2 of the STCW Code. Mariners may be considered to have met this requirement if they have completed a Coast Guard approved *Tank Ship: Dangerous Liquids* course and provide a statement signed by the Master or Chief Mate of an oil tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of dangerous liquid cargo, including those

operations specified in 46 CFR 13.127(a)(4)(i) through (xiii). The documentation of the cargo transfers required for the national endorsement as Tankerman-PIC DL by 46 CFR 13.203 may be used for this purpose. However, because some of the persons identified in 46 CFR 13.205 will not have personally witnessed the demonstrations of competence, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it is signed by the Master or Chief Mate of the oil tanker. A sample letter that may be used for this purpose is provided as Enclosure (2).

c. Mariners may qualify for an endorsement in advanced oil tanker cargo operations with a limitation to non-self-propelled vessels. To qualify for this endorsement, a mariner must:

   1) Qualify for a national endorsement as Tankerman-PIC (Barge) DL (46 CFR 13.301);

   2) Provide evidence of meeting the standards of competence in Table A-V/1-1-2 of the STCW Code; and

   3) Provide evidence of at least 90 days of vessel-based service on oil tank vessels or shore-based service on non-self propelled oil tank vessels. For the purposes of qualifying for an advanced oil tanker operations endorsement, "oil tankers" includes tank barges and integrated or articulated tug barge vessels (ITBs and ATBs) certified to carry oil cargoes. The Coast Guard will accept service submitted to qualify for a national endorsement as Tankerman-PIC (Barge) DL, provided that the service was on oil tankers.

d. Mariners may be considered to have met the standards of competence in Table A-V/1-1-2 of the STCW Code if they have completed a Coast Guard approved *Tank Ship Dangerous Liquids* course and provide a statement signed by the Master or Chief Mate of an oil tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of dangerous liquid cargo, including those operations specified in 46 CFR 13.127(a)(4)(i) through (xiii). The documentation of the cargo transfers required for the national endorsement as Tankerman-PIC (Barge) DL by 46 CFR 13.303 may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Master or Chief Mate of an oil tanker. A sample letter that may be used for this purpose is provided as Enclosure (2).

e. Mariners may qualify for an endorsement in advanced oil tanker cargo operations with a limitation to maintenance and repair of cargo equipment. To qualify for this endorsement, a mariner must:

   1) Qualify for a national endorsement as Tankerman-Engineer (46 CFR 13.501);

   2) Provide evidence of meeting the standards of competence in Table A-V/1-1-2 of the STCW Code that are applicable to maintenance and repair of cargo equipment; and

   3) Provide evidence of at least 90 days of service as an engineering officer and/or rating or cadet on oil tankers. The Coast Guard will accept service submitted to qualify for

a national endorsement as Tankerman-Engineer, provided that the service was on oil tankers.

f. Mariners may be considered to have met the standards of competence in Table A-V/1-1-2 of the STCW Code for an endorsement limited to maintenance and repair of cargo equipment if they have completed a Coast Guard approved *Tank Ship: Dangerous Liquids* course and provide a statement that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of fuel oil, including those operations specified in 46 CFR 13.127(a)(5)(i) through (x). The documentation required for the national endorsement as Tankerman-Engineer may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Chief Engineer of the oil tanker. A sample letter that may be used for this purpose is provided as Enclosure (3).

g. Mariners holding an endorsement in advanced chemical tanker cargo operations or advanced liquefied gas tanker cargo operations may qualify for an equivalent endorsement in advanced oil tanker cargo operations by completing, in a supernumerary capacity, a Coast Guard approved training program on board oil tankers. The program must be at least one month and include at least three loading and three discharge operations.

h. As specified in 46 CFR 13.603(e) and 13.605(e), mariners holding valid endorsements as Tankerman-PIC DL, Tankerman-PIC (Barge) DL, or Tankerman-Engineer issued prior to March 24, 2014, will be issued STCW endorsements for advanced oil tanker cargo operations and chemical tanker cargo operations, with the appropriate limitations without meeting the requirements of those sections. Mariners holding an endorsement as Tankerman-PIC (Barge) DL will be limited to non-self-propelled vessels. Mariners holding an endorsement as Tankerman-Engineer will be limited to maintenance and repair of cargo equipment. On or after March 24, 2014 , all mariners applying for an original endorsement in advanced oil tanker cargo operations must meet the requirements of 46 CFR 13.603 and 13.605.

5. <u>QUALIFICATION REQUIREMENTS FOR ADVANCED CHEMICAL TANKER CARGO OPERATIONS ENDORSEMENTS</u>.

a. As specified in 46 CR 13.605, to qualify for an STCW endorsement for advanced chemical tanker operations, a mariner must:

1) Qualify for a national endorsement as Tankerman-PIC DL (46 CFR 13.201);

2) Provide evidence of meeting the standards of competence in Table A-V/1-1-3 of the STCW Code; and

3) Provide evidence of 90 days of sea service onboard chemical tankers. As defined in 46 CFR 10.107, for the purposes of qualifying for this endorsement, a “chemical tanker” is a tank vessel that is certificated to carry chemical cargoes. This includes product tankers that are certificated to carry both oil and chemical cargoes. The

Coast Guard will accept service submitted to qualify for the national endorsement of Tankerman-PIC DL, provided that the service was on chemical tankers.

b. Mariners may be considered to have met the standards of competence in Table A-V/1-1-3 of the STCW Code if they have completed an approved *Tank Ship: Dangerous Liquids* course and provide a statement signed by the Master or Chief Mate of the chemical tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of dangerous liquid cargo, including those operations specified in 46 CFR 13.127(a)(4)(i) through (xiii). The documentation of the cargo transfers required for the national endorsement as Tankerman-PIC DL by 46 CFR 13.203 may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Master or Chief Mate of the chemical tanker. A sample letter that may be used for this purpose is provided as Enclosure (2).

c. Mariners may qualify for an endorsement in advanced chemical tanker cargo operations with a limitation to non-self-propelled vessels. To qualify for this endorsement, a mariner must:

1) Qualify for a national endorsement as Tankerman-PIC (Barge) DL (46 CFR 13.301);

2) Provide evidence of meeting the standards of competence in Table A-V/1-1-3 of the STCW Code; and

3) Provide evidence of at least 90 days of shore or vessel based service on chemical tankers. For the purposes of qualifying for an advanced chemical tanker operations endorsement, "chemical tankers" includes tank barges, ITBs, and ATBs certified to carry chemicals. The Coast Guard will accept service submitted to qualify for a national endorsement as Tankerman-PIC (Barge) DL, provided that the service was on chemical tankers.

d. Mariners may be considered to have met the standards of competence in Table A-V/1-1-3 of the STCW Code if they have completed a Coast Guard approved *Tank Ship: Dangerous Liquids* course and provide a statement signed by the Master or Chief Mate of the chemical tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of dangerous liquid cargo, including those operations specified in 46 CFR 13.127(a)(4)(i) through (xiii). The documentation of the cargo transfers required for the national endorsement as Tankerman-PIC (Barge) DL by 46 CFR 13.303 may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Master or Chief Mate of a chemical tanker. A sample letter that may be used for this purpose is provided as Enclosure (2).

e. Mariners may qualify for an endorsement in advanced chemical tanker cargo operations with a limitation to maintenance and repair of cargo equipment. To qualify for this endorsement, a mariner must:

1) Qualify for a national endorsement as Tankerman-Engineer (46 CFR 13.501);

2) Provide evidence of meeting the standards of competence in Table A-V/1-1-3 of the STCW Code that are applicable to maintenance and repair of cargo equipment; and

3) Provide evidence of at least 90 days of service as an engineering officer and/or rating or cadet on chemical tankers. The Coast Guard will accept service submitted to qualify for a national endorsement as Tankerman-Engineer, provided that the service was on chemical tankers.

f. Mariners may be considered to have met the standards of competence in Table A-V/1-1-3 of the STCW Code for an endorsement limited to maintenance and repair of cargo equipment if they have completed a Coast Guard approved *Tank Ship: Dangerous Liquids* course and provide a statement signed by the Chief Engineer or Master of the chemical tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of fuel oil, including those operations specified in 46 CFR 13.127(a)(5)(i) through (x). The documentation required for the national endorsement as Tankerman-Engineer may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Chief Engineer or Master of the chemical tanker. A sample letter that may be used for this purpose is provided as Enclosure (3).

g. Mariners holding an endorsement in advanced oil tanker cargo operations or advanced liquefied gas tanker cargo operations may qualify for an equivalent endorsement in advanced chemical tanker cargo operations by completing, in a supernumerary capacity, an approved training program onboard chemical tankers. The program must be at least one month and include at least three loading and three discharge operations.

h. As specified in 46 CFR 13.603(e) and 13.605(e), mariners holding valid endorsements as Tankerman-PIC DL, Tankerman-PIC (Barge) DL, or Tankerman-Engineer issued prior to March 24, 2014, will be issued STCW endorsements for advanced oil and chemical tanker cargo operations, with the appropriate limitations without meeting the requirements of those sections. Mariners holding an endorsement as Tankerman-PIC (Barge) DL will be limited to non-self-propelled vessels. Mariners holding an endorsement as Tankerman-Engineer will be limited to maintenance and repair of cargo equipment. On or after March 24, 2014, all mariners applying for an original endorsement in advanced chemical tanker cargo operations must meet the requirements of 46 CFR 13.603 and 13.605.

6. <u>QUALIFICATION REQUIREMENTS FOR ADVANCED LIQUEFIED GAS TANKER CARGO OPERATIONS ENDORSEMENTS</u>.

a. As specified in 46 CR 13.607, to qualify for an STCW endorsement for advanced liquefied gas tanker operations, a mariner must:

1) Qualify for a national endorsement as Tankerman-PIC LG (46 CFR 13.201);

2) Provide evidence of meeting the standards of competence in Table A-V/1-2-2 of the STCW Code; and

3) Provide evidence of 90 days of sea service on liquefied gas tankers. The Coast Guard will accept service submitted to qualify for the national endorsement of Tankerman-PIC LG, provided that the service was on liquefied gas tankers.

b. Mariners may be considered to have met the standards of competence in Table A-V/1-2-2 of the STCW Code if they have completed a Coast Guard approved *Tank Ship: Liquefied Gases* course and provide a statement signed by the Master or Chief Mate of the liquefied gas tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of liquefied gas cargoes. The documentation of the cargo transfers required for the national endorsement as Tankerman-PIC LG by 46 CFR 13.203(b) may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Master or Chief Mate of the liquefied gas tanker. A sample letter that may be used for this purpose is provided as Enclosure (2). This sample should be revised as needed for use on liquefied gas tankers.

c. Mariners may qualify under 46 CR 13.607 for an endorsement in advanced liquefied gas tanker cargo operations with a limitation to non-self-propelled vessels. To qualify for this endorsement, a mariner must:

1) Qualify for a national endorsement as Tankerman-PIC (Barge) LG (46 CFR 13.301);

2) Provide evidence of meeting the standards of competence in Table A-V/1-2-2 of the STCW Code; and,

3) Provide evidence of at least 90 days of shore or vessel based service on liquefied gas tankers. For the purposes of qualifying for an advanced liquefied gas tanker operations endorsement, “liquefied gas tankers” includes ITBs and ATBs certified to carry liquefied gas cargoes. The Coast Guard will accept service submitted to qualify for a national endorsement as Tankerman-PIC (Barge) LG, provided that the service was on liquefied gas tankers.

d. Mariners may be considered to have met the standards of competence in Table A-V/1-2-2 of the STCW Code if they have completed a Coast Guard approved *Tank Ship: Liquefied Gases* course and provide a statement signed by the Master or Chief Mate of the liquefied gas tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of liquefied gas cargoes. The documentation of the cargo transfers required for the national endorsement as Tankerman-PIC (Barge) DL by 46 CFR 13.303 may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Master or Chief Mate of the liquefied gas tanker. A sample letter that may be used for this purpose is provided as Enclosure (2). This sample should be revised as needed for use on liquefied gas tankers.

e. Mariners may qualify under 46 CR 13.607 for an endorsement in advanced liquefied gas tanker cargo operations with a limitation to maintenance and repair of cargo equipment. To qualify for this endorsement, a mariner must:

1) Qualify for a national endorsement as Tankerman-Engineer (46 CFR 13.501);

2) Provide evidence of meeting the standards of competence in Table A-V/1-2-2 of the STCW Code that are applicable to maintenance and repair of cargo equipment; and,

3) Provide evidence of at least 90 days of service as an engineering officer and/or rating or cadet on liquefied gas tankers. The Coast Guard will accept service submitted to qualify for a national endorsement as Tankerman-Engineer (LG), provided that the service was on liquefied gas tankers.

f. Mariners may be considered to have met the standards of competence in Table A-V/1-2-2 of the STCW Code for an endorsement limited to maintenance and repair of cargo equipment if they have completed a Coast Guard approved *Tank Ship: Liquefied Gases* course and provide a statement signed by the Chief Engineer or Master of the liquefied gas tanker that the mariner has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of liquefied gas cargoes, including those operations specified in 46 CFR 13.127(a)(5)(i) through (x). The documentation required for the national endorsement as Tankerman-Engineer may be used. However, as explained in paragraph 4.b of this enclosure, this letter will only be acceptable as evidence of meeting the standard of competence in the STCW Code if it was signed by the Chief Engineer or Master of the liquefied gas tanker. A sample letter that may be used for this purpose is provided as Enclosure (3).

g. Mariners holding an endorsement in advanced oil tanker cargo operations or advanced chemical tanker cargo operations may qualify for an equivalent endorsement in advanced liquefied gas tanker cargo operations by completing, in a supernumerary capacity, an approved training program on board liquefied gas tankers. The program must be at least one month in duration and include at least three loading and three discharge operations.

h. As specified in 46 CFR 13.607(e), mariners holding valid Tankerman-PIC LG, Tankerman-PIC (Barge) LG gas, or Tankerman-Engineer endorsements issued prior to March 24, 2014, will be issued an STCW endorsement for advanced liquefied gas tanker cargo operations with the appropriate limitations without meeting the requirements above. Mariners holding an endorsement as Tankerman-PIC (Barge) LG will be limited to non-self-propelled vessels. Mariners holding an endorsement as Tankerman-Engineer will be limited to maintenance and repair of cargo equipment. On or after March 24, 2014, all mariners applying for an original endorsement in advanced liquefied gas tanker cargo operations must meet the requirements above.

7. RENEWAL OF STCW TANKER OPERATIONS ENDORSEMENTS.

To renew an STCW endorsement for tanker operations, mariners must meet the general requirements of 46 CFR 10.227 for renewing a MMC, except for the professional requirements in 46 CFR 10.227(e)(1). In addition, mariners must meet the following

additional requirements in 46 CFR 13.120 for renewal of their national tankerman endorsement:

a. For endorsements for Tankerman-PIC, present evidence of:

   1) At least 90 days of service during the preceding 5 years onboard a tank vessel for which the endorsement is valid, performing duties appropriate to the tankerman endorsement held; and participation in at least two transfers of liquid cargo in bulk of the type for which the endorsement is valid within the preceding 5 years; or

   2) Completion of a Coast Guard approved course for *Tankship: Dangerous Liquids* or *Tankship: Liquefied Gases*, appropriate for the endorsement to be renewed, within the previous 5 years.

b. For endorsements as Tankerman-Assistant, present evidence of:

   1) At least 90 days of service during the preceding 5 years onboard a tank vessel for which the endorsement is valid, performing duties appropriate to the tankerman endorsement held; or

   2) Completion of a Coast Guard approved course for *Tankship: Familiarization (Dangerous Liquids)* or *Tankship: Familiarization (Liquefied Gases)*, appropriate for the endorsement to be renewed, within the previous 5 years.

c. For endorsements as Tankerman-PIC (Barge), present evidence of:

   1) Participation in at least two transfers of liquid cargo in bulk of the type for which the endorsement is valid, within the preceding 5 years; or

   2) Completion of a course approved by the Coast Guard for this purpose, appropriate for the endorsement to be renewed, within the previous 5 years.

d. For endorsements as Tankerman-Engineer, present evidence of:

   1) At least 90 days of service during the preceding 5 years onboard a tank vessel for which the endorsement is valid, performing duties appropriate to the tankerman endorsement held; or

   2) Completion of a course approved by the Coast Guard for this purpose, appropriate for the endorsement to be renewed, within the previous 5 years.

Company or Vessel Letterhead

[*Date*]

U.S.C.G. National Maritime Center
100 Forbes Drive
Martinsburg, WV 25404

Dear Sir/Madam:

This letter will certify that [*Candidate Name*] , Mariner Reference No. _____, served on the tank vessel noted below for the dates indicated and in the noted capacity aboard the vessel.

Tank Vessel Name	**Vessel Type** *(Oil/Chemical/LG)*	**Official No.**	**From**	**To**	**Capacity**

While serving on the vessel noted above, [*Candidate Name*] participated in the cargo transfer operations noted on the following page. During his/her service and cargo transfer participation, [*Candidate Name*] demonstrated to my satisfaction that he/she is fully capable of supervising transfers of liquid cargo, including:

- Pre-transfer inspection;
- Pre-transfer conference and execution of the Declaration of Inspection;
- Connection of cargo hoses or loading-arms;
- Line-up of the cargo system for loading and discharge;
- Start of liquid flow during loading;
- Start of cargo pump and increase of pressure to normal discharge pressure;
- Calculation of loading rates;
- Monitoring;
- Topping-off of cargo tanks during loading;
- Stripping of cargo tanks;
- Ballasting and deballasting;
- Disconnection of the cargo hoses or loading arms; and
- Securing of cargo systems.

Signature of Master or Chief Mate

Printed Name of Master or Chief Mate
Master(or Chief Mate), [*Vessel Name*]

Encl: Record of Cargo Transfer Participation

This letter is to document eligibility for tankerman endorsements under 46 CFR Part 13.
It is not intended to document sea service under 46 CFR 10.232.

_____ _____ _____

Candidate Name *Candidate Mariner Reference No.* *Signature of Master or Chief Mate*

RECORD OF CARGO TRANSFER PARTICIPATION

DATE	PRODUCT	PORT & FACILITY	LOAD	DISCHARGE	COMMENCEMENT[1]	COMPLETION[2]	P.I.C. NAME (*Print*)	P.I.C. SIGNATURE
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		

1 Credit for a commencement of loading accrues only if the candidate participates in the pre-transfer inspection, the pre-transfer conference including execution of the Declaration of Inspection, the connection of hoses or loading-arms, the line-up of the system for the loading, the start of liquid flow, and the calculation of loading-rates, where applicable. Credit for a commencement of discharge accrues only if the applicant participates in the pretransfer inspection, the pre-transfer conference including execution of the Declaration of Inspection, the connection of hoses or loading-arms, the line-up of the cargo system for the discharge, the start of the pump or pumps and increase of pressure to normal pressure for discharge, and the monitoring of discharge rates.[46 CFR 13.127(b)(6) and (7)]

2 Credit for a completion of transfer, whether loading or discharge, accrues only if the applicant participates in the topping-off at the loading port, or in the stripping of cargo tanks and the commencement of ballasting, if required by the vessel's transfer procedures, at the discharge port. [46 CFR 13.127(b)(8)]

This letter is to document eligibility for tankerman endorsements under 46 CFR Part 13.
It is not intended to document sea service under 46 CFR 10.232.

Company or Vessel Letterhead

[*Date*]

U.S.C.G. National Maritime Center
100 Forbes Drive
Martinsburg, WV 25404

Dear Sir/Madam:

This letter will certify that [*Candidate Name*] , Mariner Reference No. _____, served on the tank vessel noted below for the dates indicated and in the noted capacity aboard the vessel.

Vessel Name	**Vessel Type** *(Oil/Chemical/LG)*	**Official No.**	**From**	**To**	**Capacity**

During his/her service and cargo transfer participation, [*Candidate Name*] has demonstrated to my satisfaction that he/she is fully capable of supervising transfers of fuel oil, including:

- Pre-transfer inspection;
- Pre-transfer conference and execution of the Declaration of Inspection;
- Connection of hoses or loading-arms;
- Line-up of the piping system for loading and transfer of fuel oil;
- Start of liquid flow during loading;
- Calculation of loading-rates;
- Monitoring;
- Topping-off of tanks during loading;
- Disconnection of the hoses or loading-arms; and
- Securing of fuel oil systems.

Signature of Chief Engineer or Master

Printed Name of Chief Engineer or Master
Chief Engineer (or Master), [*Vessel Name*]

This letter is to document eligibility for tankerman endorsements under 46 CFR Part 13.
It is not intended to document sea service under 46 CFR 10.232.

Excerpts from the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended

and

Seafarers' Training, Certification and Watchkeeping Code, as amended

NOTICE: These excerpts are provided for background information. By themselves, they do not constitute Coast Guard policy.

The Manila Amendments to the annex to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978

Chapter I
General provisions

Regulation I/6
Training and assessment

Each Party shall ensure that:

.1 the training and assessment of seafarers, as required under the Convention, are administered, supervised and monitored in accordance with the provisions of section A-I/6 of the STCW Code; and

.2 those responsible for the training and assessment of competence of seafarers, as required under the Convention, are appropriately qualified in accordance with the provisions of section A-I/6 of the STCW Code for the type and level of training and assessment involved.

Regulation I/12
Use of simulators

1 The performance standards and other provisions set forth in section A-I/12 and such other requirements as are prescribed in part A of the STCW Code for any certificate concerned shall be complied with in respect of:

.1 all mandatory simulator-based training;

.2 any assessment of competency required by part A of the STCW Code which is carried out by means of a simulator; and

.3 any demonstration, by means of a simulator, of continued proficiency required by part A of the STCW Code.

Chapter V
Special training requirements
for personnel on certain types of ships

Regulation V/1-1
Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil and chemical tankers

1 Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on oil or chemical tankers shall hold a certificate in basic training for oil and chemical tanker cargo operations.

2 Every candidate for a certificate in basic training for oil and chemical tanker cargo operations shall have completed basic training in accordance with provisions of section A-VI/1 of the STCW Code and shall have completed:

.1 at least three months of approved seagoing service on oil or chemical tankers and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code; or

.2 an approved basic training for oil and chemical tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 1 of the STCW Code.

3 Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on oil tankers shall hold a certificate in advanced training for oil tanker cargo operations.

4 Every candidate for a certificate in advanced training for oil tanker cargo operations shall:

.1 meet the requirements for certification in basic training for oil and chemical tanker cargo operations; and

.2 while qualified for certification in basic training for oil and chemical tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on oil tankers, or

.2.2 at least one month of approved onboard training on oil tankers, in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for oil tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 2 of the STCW Code.

5 Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on chemical tankers shall hold a certificate in advanced training for chemical tanker cargo operations.

6 Every candidate for a certificate in advanced training for chemical tanker cargo operations shall:

.1 meet the requirements for certification in basic training for oil and chemical tanker cargo operations; and

.2 while qualified for certification in basic training for oil and chemical tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on chemical tankers, or

.2.2 at least one month of approved onboard training on chemical tankers, in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for chemical tanker cargo operations and meet the standard of competence specified in section A-V/1-1, paragraph 3 of the STCW Code.

7 Administrations shall ensure that a certificate of proficiency is issued to seafarers, who are qualified in accordance with paragraphs 2, 4 or 6 as appropriate, or that an existing certificate of competency or certificate of proficiency is duly endorsed.

Regulation V/1-2
Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied gas tankers

1 Officers and ratings assigned specific duties and responsibilities related to cargo or cargo equipment on liquefied gas tankers shall hold a certificate in basic training for liquefied gas tanker cargo operations.

2 Every candidate for a certificate in basic training for liquefied gas tanker cargo operations shall have completed basic training in accordance with provisions of section A-VI/1 of the STCW Code and shall have completed:

.1 at least three months of approved seagoing service on liquefied gas tankers and meet the standard of competence specified in section A-V/1-2, paragraph 1 of the STCW Code; or

.2 an approved basic training for liquefied gas tanker cargo operations and meet the standard of competence specified in section A-V/1-2, paragraph 1 of the STCW Code.

3 Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on liquefied gas tankers shall hold a certificate in advanced training for liquefied gas tanker cargo operations.

4 Every candidate for a certificate in advanced training for liquefied gas tanker cargo operations shall:

.1 meet the requirements for certification in basic training for liquefied gas tanker cargo operations; and

.2 while qualified for certification in basic training for liquefied gas tanker cargo operations, have:

.2.1 at least three months of approved seagoing service on liquefied gas tankers, or

.2.2 at least one month of approved onboard training on liquefied gas tankers, in a supernumerary capacity, which includes at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1; and

.3 have completed approved advanced training for liquefied gas tanker cargo operations and meet the standard of competence specified in section A-V/1-2, paragraph 2 of the STCW Code.

5 Administrations shall ensure that a certificate of proficiency is issued to seafarers, who are qualified in accordance with paragraphs 2 or 4 as appropriate, or that an existing certificate of competency or certificate of proficiency is duly endorsed.

The Manila Amendments to the Seafarers' Training, Certification and Watchkeeping (STCW) Code

Chapter I
Standards regarding general provisions

Section A-I/6
Training and assessment

1 Each Party shall ensure that all training and assessment of seafarers for certification under the Convention is:

.1 structured in accordance with written programmes, including such methods and media of delivery, procedures, and course material as are necessary to achieve the prescribed standard of competence; and

.2 conducted, monitored, evaluated and supported by persons qualified in accordance with paragraphs 4, 5 and 6.

2 Persons conducting in-service training or assessment on board ship shall only do so when such training or assessment will not adversely affect the normal operation of the ship and they can dedicate their time and attention to training or assessment.

Qualifications of instructors, supervisors and assessors[*]

3 Each Party shall ensure that instructors, supervisors and assessors are appropriately qualified for the particular types and levels of training or assessment of competence of seafarers either on board or ashore, as required under the Convention, in accordance with the provisions of this section.

In-service training

4 Any person conducting in-service training of a seafarer, either on board or ashore, which is intended to be used in qualifying for certification under the Convention, shall:

.1 have an appreciation of the training programme and an understanding of the specific training objectives for the particular type of training being conducted;

.2 be qualified in the task for which training is being conducted; and

.3 if conducting training using a simulator:

.3.1 have received appropriate guidance in instructional techniques involving the use of simulators; and

.3.2 have gained practical operational experience on the particular type of simulator being used.

5 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention shall have a full understanding of the training programme and the specific objectives for each type of training being conducted.

[*] The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Assessment of competence

6 Any person conducting in-service assessment of competence of a seafarer, either on board or ashore, which is intended to be used in qualifying for certification under the Convention, shall:

.1 have an appropriate level of knowledge and understanding of the competence to be assessed;

.2 be qualified in the task for which the assessment is being made;

.3 have received appropriate guidance in assessment methods and practice;

.4 have gained practical assessment experience; and

.5 if conducting assessment involving the use of simulators, have gained practical assessment experience on the particular type of simulator under the supervision and to the satisfaction of an experienced assessor.

Training and assessment within an institution

7 Each Party which recognizes a course of training, a training institution, or a qualification granted by a training institution, as part of its requirements for the issue of a certificate required under the Convention, shall ensure that the qualifications and experience of instructors and assessors are covered in the application of the quality standard provisions of section A-I/8. Such qualification, experience and application of quality standards shall incorporate appropriate training in instructional techniques, and training and assessment methods and practice, and shall comply with all applicable requirements of paragraphs 4 to 6.

Section A-I/12
Standards governing the use of simulators

Part 1 – Performance standards

General performance standards for simulators used in training

1 Each Party shall ensure that any simulator used for mandatory simulator-based training shall:

.1 be suitable for the selected objectives and training tasks;

.2 be capable of simulating the operating capabilities of shipboard equipment concerned, to a level of physical realism appropriate to training objectives, and include the capabilities, limitations and possible errors of such equipment;

.3 have sufficient behavioural realism to allow a trainee to acquire the skills appropriate to the training objectives;

.4 provide a controlled operating environment, capable of producing a variety of conditions, which may include emergency, hazardous or unusual situations relevant to the training objectives;

.5 provide an interface through which a trainee can interact with the equipment, the simulated environment and, as appropriate, the instructor; and

.6 permit an instructor to control, monitor and record exercises for the effective debriefing of trainees.

General performance standards for simulators used in assessment of competence

2 Each Party shall ensure that any simulator used for the assessment of competence required under the Convention or for any demonstration of continued proficiency so required shall:

.1 be capable of satisfying the specified assessment objectives;

.2 be capable of simulating the operational capabilities of the shipboard equipment concerned to a level of physical realism appropriate to the assessment objectives, and include the capabilities, limitations and possible errors of such equipment;

.3 have sufficient behavioural realism to allow a candidate to exhibit the skills appropriate to the assessment objectives;

.4 provide an interface through which a candidate can interact with the equipment and simulated environment;

.5 provide a controlled operating environment, capable of producing a variety of conditions, which may include emergency, hazardous or unusual situations relevant to assessment objectives; and

.6 permit an assessor to control, monitor and record exercises for the effective assessment of the performance of candidates.

*** * * * ***

Part 2 – Other provisions

Simulator training objectives

6 Each Party shall ensure that the aims and objectives of simulator-based training are defined within an overall training programme and that specific training objectives and tasks are selected so as to relate as closely as possible to shipboard tasks and practices.

Training procedures

7 In conducting mandatory simulator-based training, instructors shall ensure that:

.1 trainees are adequately briefed beforehand on the exercise objectives and tasks and are given sufficient planning time before the exercise starts;

.2 trainees have adequate familiarization time on the simulator and with its equipment before any training or assessment exercise commences;

.3 guidance given and exercise stimuli are appropriate to the selected exercise objectives and tasks and to the level of trainee experience;

.4 exercises are effectively monitored, supported as appropriate by audio and visual observation of trainee activity and pre- and post-exercise evaluation reports;

.5 trainees are effectively debriefed to ensure that training objectives have been met and that operational skills demonstrated are of an acceptable standard;

.6 the use of peer assessment during debriefing is encouraged; and

.7 simulator exercises are designed and tested so as to ensure their suitability for the specified training objectives.

Assessment procedures

8 Where simulators are used to assess the ability of candidates to demonstrate levels of competency, assessors shall ensure that:

.1 performance criteria are identified clearly and explicitly and are valid and available to the candidates;

.2 assessment criteria are established clearly and are explicit to ensure reliability and uniformity of assessment and to optimize objective measurement and evaluation, so that subjective judgements are kept to the minimum;

.3 candidates are briefed clearly on the tasks and/or skills to be assessed and on the tasks and performance criteria by which their competency will be determined;

.4 assessment of performance takes into account normal operating procedures and any behavioural interaction with other candidates on the simulator or with simulator staff;

.5 scoring or grading methods to assess performance are used with caution until they have been validated; and

.6 the prime criterion is that a candidate demonstrates the ability to carry out a task safely and effectively to the satisfaction of the assessor.

Qualifications of instructors and assessors[*]

9 Each Party shall ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training and corresponding assessment of competence as specified in regulation I/6 and section A-I/6.

[*] The relevant IMO Model Course(s) and resolution MSC.64(67), *Recommendations on new and amended performance standards*, may be of assistance in the preparation of courses.

Chapter V

Standards regarding special training requirements
for personnel on certain types of ships

Section A-V/1-1

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on oil and chemical tankers

Standard of competence

1 Every candidate for certification in basic training for oil and chemical tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-1; and

.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-1, and

.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-1.

2 Every candidate for certification in advanced training for oil tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-2; and

.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-2, and

.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-2.

3 Every candidate for certification in advanced training for chemical tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-3; and

.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-3, and

.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-3.

Table A-V/1-1-1

Specification of minimum standard of competence in basic training for oil and chemical tanker cargo operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to the safe cargo operation of oil and chemical tankers	Basic knowledge of tankers: .1 types of oil and chemical tankers .2 general arrangement and construction Basic knowledge of cargo operations: .1 piping systems and valves .2 cargo pumps .3 loading and unloading .4 tank cleaning, purging, gas-freeing and inerting Basic knowledge of the physical properties of oil and chemicals: .1 pressure and temperature, including vapour pressure/temperature relationship .2 types of electrostatic charge generation .3 chemical symbols Knowledge and understanding of tanker safety culture and safety management	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Communications within the area of responsibility are clear and effective Cargo operations are carried out in accordance with accepted principles and procedures to ensure safety of operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent hazards	Basic knowledge of the hazards associated with tanker operations, including: .1 health hazards .2 environmental hazards .3 reactivity hazards .4 corrosion hazards .5 explosion and flammability hazards .6 sources of ignition, including electrostatic hazards .7 toxicity hazards .8 vapour leaks and clouds Basic knowledge of hazard controls: .1 inerting, water padding, drying agents and monitoring techniques .2 anti-static measures .3 ventilation .4 segregation .5 cargo inhibition .6 importance of cargo compatibility .7 atmospheric control .8 gas testing Understanding of information on a Material Safety Data Sheet (MSDS)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Correctly identifies, on an MSDS, relevant cargo-related hazards to the vessel and to personnel, and takes the appropriate actions in accordance with established procedures Identification and actions on becoming aware of a hazardous situation conform to established procedures in line with best practice

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Apply occupational health and safety precautions and measures	Function and proper use of gas-measuring instruments and similar equipment Proper use of safety equipment and protective devices, including: .1 breathing apparatus and tank-evacuating equipment .2 protective clothing and equipment .3 resuscitators .4 rescue and escape equipment Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety relevant to oil and chemical tankers, including: .1 precautions to be taken when entering enclosed spaces .2 precautions to be taken before and during repair and maintenance work .3 safety measures for hot and cold work .4 electrical safety .5 ship/shore safety checklist Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures for entry into enclosed spaces are observed. Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times Appropriate safety and protective equipment is correctly used First aid do’s and don’ts

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Carry out fire-fighting operations	Tanker fire response organization and action to be taken Fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk Fire-fighting agents used to extinguish oil and chemical fires Fixed fire-fighting foam system operations Portable fire-fighting foam operations Fixed dry chemical system operations Spill containment in relation to fire-fighting operations	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g., simulated shipboard conditions) and, whenever possible and practicable, in darkness	Initial actions and follow-up actions on becoming aware of fire on board conform with established practices and procedures Action taken on identifying muster signal is appropriate to the indicated emergency and complies with established procedures Clothing and equipment are appropriate to the nature of the fire-fighting operations The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions Extinguishment of fire is achieved using appropriate procedures, techniques and fire-fighting agents
Respond to emergencies	Basic knowledge of emergency procedures, including emergency shutdown	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The type and impact of the emergency is promptly identified and the response actions conform to the emergency procedures and contingency plans

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent pollution of the environment from the release of oil or chemicals	Basic knowledge of the effects of oil and chemical pollution on human and marine life Basic knowledge of shipboard procedures to prevent pollution Basic knowledge of measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures designed to safeguard the environment are observed at all times

Table A-V/1-1-2
Specification of minimum standard of competence in advanced training for oil tanker cargo operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations	*Design and characteristics of an oil tanker* Knowledge of oil tanker design, systems and equipment, including: .1 general arrangement and construction .2 pumping arrangement and equipment .3 tank arrangement, pipeline system and tank venting arrangement .4 gauging systems and alarms .5 cargo heating systems .6 tank cleaning, gas-freeing and inerting systems .7 ballast system .8 cargo area venting and accommodation ventilation .9 slop arrangements .10 vapour recovery systems .11 cargo-related electrical and electronic control system .12 environmental protection equipment, including Oil Discharge Monitoring Equipment (ODME)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Communications are clear, understood and successful Cargo operations are carried out in a safe manner, taking into account oil tanker designs, systems and equipment Cargo operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and avoid pollution of the marine environment Potential non-compliance with cargo-operation-related procedures is promptly identified and rectified Proper loading, stowage and unloading of cargoes ensures that stability and stress conditions remain within safe limits at all times Actions taken and procedures followed are correctly applied and the appropriate shipboard cargo-related equipment is properly used Calibration and use of monitoring and gas-detection equipment comply with operational practices and procedures

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	.13 tank coating .14 tank temperature and pressure control systems .15 fire-fighting systems Knowledge of pump theory and characteristics, including types of cargo pumps and their safe operation Proficiency in tanker safety culture and implementation of safety-management system Knowledge and understanding of monitoring and safety systems, including the emergency shutdown *Loading, unloading, care and handling of cargo* Ability to perform cargo measurements and calculations Knowledge of the effect of bulk liquid cargoes on trim, stability and structural integrity Knowledge and understanding of oil cargo-related operations, including: .1 loading and unloading plans .2 ballasting and deballasting .3 tank cleaning operations .4 inerting .5 gas-freeing		Procedures for monitoring and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	.6 ship-to-ship transfers .7 load on top .8 crude oil washing Development and application of cargo-related operation plans, procedures and checklists Ability to calibrate and use monitoring and gas-detection systems, instruments and equipment Ability to manage and supervise personnel with cargo-related responsibilities		Personnel are allocated duties and informed of procedures and standards of work to be followed, in a manner appropriate to the individuals concerned and in accordance with safe operational practices
Familiarity with physical and chemical properties of oil cargoes	Knowledge and understanding of the physical and chemical properties of oil cargoes Understanding the information contained in a Material Safety Data Sheet (MSDS)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Effective use is made of information resources for identification of properties and characteristics of oil cargoes and related gases, and their impact on safety, the environment and vessel operation

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent hazards	Knowledge and understanding of the hazards and control measures associated with oil tanker cargo operations, including: .1 toxicity .2 flammability and explosion .3 health hazards .4 inert gas composition .5 electrostatic hazards Knowledge and understanding of dangers of non-compliance with relevant rules/regulations	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Relevant cargo-related hazards to the vessel and to personnel associated with oil tanker cargo operations are correctly identified, and proper control measures are taken
Apply occupational health and safety precautions	Knowledge and understanding of safe working practices, including risk assessment and personal shipboard safety relevant to oil tankers: .1 precautions to be taken when entering enclosed spaces, including correct use of different types of breathing apparatus .2 precautions to be taken before and during repair and maintenance work .3 precautions for hot and cold work .4 precautions for electrical safety .5 use of appropriate Personal Protective Equipment (PPE)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures designed to safeguard personnel and the ship are observed at all times Safe working practices are observed and appropriate safety and protective equipment is correctly used Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns Correct use of breathing apparatus Procedures for entry into enclosed spaces are observed

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Respond to emergencies	Knowledge and understanding of oil tanker emergency procedures, including: .1 ship emergency response plans .2 cargo operations emergency shutdown .3 actions to be taken in the event of failure of systems or services essential to cargo .4 fire-fighting on oil tankers .5 enclosed space rescue .6 use of a Material Safety Data Sheet (MSDS) Actions to be taken following collision, grounding, or spillage Knowledge of medical first aid procedures on board oil tankers	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The type and impact of the emergency is promptly identified and the response actions conform with established emergency procedures and contingency plans The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly The identification of and actions taken in a medical emergency conform to current recognized first aid practice and international guidelines
Take precautions to prevent pollution of the environment	Understanding of procedures to prevent pollution of the atmosphere and the environment	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Operations are conducted in accordance with accepted principles and procedures to prevent pollution of the environment

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Monitor and control compliance with legislative requirements	Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL), as amended, and other relevant IMO instruments, industry guidelines and port regulations as commonly applied	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The handling of cargoes complies with relevant IMO instruments and established industrial standards and codes of safe working practice

Table A-V/1-1-3
Specification of minimum standard of competence in advanced training for chemical tanker cargo operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations	*Design and characteristics of a chemical tanker* Knowledge of chemical tanker designs, systems, and equipment, including: .1 general arrangement and construction .2 pumping arrangement and equipment .3 tank construction and arrangement .4 pipeline and drainage systems .5 tank and cargo pipeline pressure and temperature control systems and alarms .6 gauging control systems and alarms .7 gas-detecting systems .8 cargo heating and cooling systems .9 tank cleaning systems .10 cargo tank environmental control systems .11 ballast systems .12 cargo area venting and accommodation ventilation .13 vapour return/recovery systems .14 fire-fighting systems	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Communications are clear, understood and successful Cargo operations are carried out in a safe manner, taking into account chemical tanker designs, systems and equipment Cargo operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and avoid pollution of the marine environment

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	.15 tank, pipeline and fittings' material and coatings .16 slop management Knowledge of pump theory and characteristics, including types of cargo pumps and their safe operation Proficiency in tanker safety culture and implementation of safety management system Knowledge and understanding of monitoring and safety systems, including the emergency shutdown system *Loading, unloading, care and handling of cargo* Ability to perform cargo measurements and calculations Knowledge of the effect of bulk liquid cargoes on trim and stability and structural integrity Knowledge and understanding of chemical cargo-related operations, including: .1 loading and unloading plans .2 ballasting and deballasting .3 tank cleaning operations .4 tank atmosphere control		Procedures for monitoring and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established procedures Proper loading, stowage and unloading of cargoes ensures that stability and stress conditions remain within safe limits at all times Potential non-compliance with cargo-related procedures is promptly identified and rectified Actions taken and procedures followed are correctly identified and appropriate shipboard cargo-related equipment is properly used

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	.5 inerting .6 gas-freeing .7 ship-to-ship transfers .8 inhibition and stabilization requirements .9 heating and cooling requirements and consequences to adjacent cargoes .10 cargo compatibility and segregation .11 high-viscosity cargoes .12 cargo residue operations .13 operational tank entry Development and application of cargo-related operation plans, procedures and checklists		
	Ability to calibrate and use monitoring and gas-detection systems, instruments and equipment		Calibration and use of monitoring and gas-detection equipment are consistent with safe operational practices and procedures
	Ability to manage and supervise personnel with cargo-related responsibilities		Personnel are allocated duties and informed of procedures and standards of work to be followed, in a manner appropriate to the individuals concerned and in accordance with safe operational practices

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Familiarity with physical and chemical properties of chemical cargoes	Knowledge and understanding of the chemical and the physical properties of noxious liquid substances, including: .1 chemical cargoes categories (corrosive, toxic, flammable, explosive) .2 chemical groups and industrial usage .3 reactivity of cargoes Understanding the information contained in a Material Safety Data Sheet (MSDS)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Effective use is made of information resources for identification of properties and characteristics of noxious liquid substances and related gases, and their impact on safety, environmental protection and vessel operation
Take precautions to prevent hazards	Knowledge and understanding of the hazards and control measures associated with chemical tanker cargo operations, including: .1 flammability and explosion .2 toxicity .3 health hazards .4 inert gas composition .5 electrostatic hazards .6 reactivity .7 corrosivity .8 low-boiling-point cargoes .9 high-density cargoes .10 solidifying cargoes .11 polymerizing cargoes	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Relevant cargo-related hazards to the vessel and to personnel associated with chemical tanker cargo operations are correctly identified, and proper control measures are taken
Take	Knowledge and		

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
precautions to prevent hazards *(continued)*	understanding of dangers of non-compliance with relevant rules/regulations		
Apply occupational health and safety precautions	Knowledge and understanding of safe working practices, including risk assessment and personal shipboard safety relevant to chemical tankers: .1 precautions to be taken when entering enclosed spaces, including correct use of different types of breathing apparatus .2 precautions to be taken before and during repair and maintenance work .3 precautions for hot and cold work .4 precautions for electrical safety .5 use of appropriate Personal Protective Equipment (PPE)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures designed to safeguard personnel and the ship are observed at all times Safe working practices are observed and appropriate safety and protective equipment is correctly used Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns Correct use of breathing apparatus Procedures for entry into enclosed spaces are observed

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Respond to emergencies	Knowledge and understanding of chemical tanker emergency procedures, including: .1 ship emergency response plans .2 cargo operations emergency shutdown .3 actions to be taken in the event of failure of systems or services essential to cargo .4 fire fighting on chemical tankers .5 enclosed space rescue .6 cargo reactivity .7 jettisoning cargo .8 use of a Material Safety Data Sheet (MSDS) Actions to be taken following collision, grounding, or spillage Knowledge of medical first aid procedures on board chemical tankers, with reference to the Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The type and impact of the emergency is promptly identified and the response actions conform with established emergency procedures and contingency plans The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly The identification of and actions taken in a medical emergency conform to current recognized first aid practice and international guidelines

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent pollution of the environment	Understanding of procedures to prevent pollution of the atmosphere and the environment	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Operations are conducted in accordance with accepted principles and procedures to prevent pollution of the environment
Monitor and control compliance with legislative requirements	Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL) and other relevant IMO instruments, industry guidelines and port regulations as commonly applied Proficiency in the use of the IBC Code and related documents	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The handling of cargoes complies with relevant IMO instruments and established industrial standards and codes of safe working practice

Section A-V/1-2
Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied gas tankers

Standard of competence

1 Every candidate for certification in basic training for liquefied gas tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-2-1; and

.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-2-1, and

.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-2-1.

2 Every candidate for certification in advanced training for liquefied gas tanker cargo operations shall be required to:

.1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-2-2; and

.2 provide evidence of having achieved:

.2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-2-2, and

.2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-2-2.

Table A-V/1-2-1
Specification of minimum standard of competence in basic training for liquefied gas tanker cargo operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to the safe operation of a liquefied gas tanker	*Design and operational characteristics of liquefied gas tankers* Basic knowledge of liquefied gas tankers .1 types of liquefied gas tankers .2 general arrangement and construction Basic knowledge of cargo operations: .1 piping systems and valves .2 cargo handling equipment .3 loading, unloading and care in transit .4 emergency shutdown (ESD) system .5 tank cleaning, purging, gas-freeing and inerting Basic knowledge of the physical properties of liquefied gases, including: .1 properties and characteristics .2 pressure and temperature, including vapour pressure/temperature relationship .3 types of electrostatic charge generation	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Communications within the area of responsibility are clear and effective Cargo operations are carried out in accordance with accepted principles and procedures to ensure safety of operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Contribute to the safe operation of a liquefied gas tanker (*continued*)	.4 chemical symbols Knowledge and understanding of tanker safety culture and safety management		
Take precautions to prevent hazards	Basic knowledge of the hazards associated with tanker operations, including: .1 health hazards .2 environmental hazards .3 reactivity hazards .4 corrosion hazards .5 explosion and flammability hazards .6 sources of ignition .7 electrostatic hazards .8 toxicity hazards .9 vapour leaks and clouds .10 extremely low temperatures .11 pressure hazards Basic knowledge of hazard controls: .1 inerting, drying and monitoring techniques .2 anti-static measures .3 ventilation .4 segregation .5 cargo inhibition .6 importance of cargo compatibility	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Correctly identifies, on an MSDS, relevant cargo-related hazards to the vessel and to personnel, and takes the appropriate actions in accordance with established procedures Identification and actions on becoming aware of a hazardous situation conform to established procedures in line with best practice

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent hazards (*continued*)	.7 atmospheric control .8 gas testing Understanding of information on a Material Safety Data Sheet (MSDS)		
Apply occupational health and safety precautions and measures	Function and proper use of gas-measuring instruments and similar equipment Proper use of safety equipment and protective devices, including: .1 breathing apparatus and tank evacuating equipment .2 protective clothing and equipment .3 resuscitators .4 rescue and escape equipment Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety relevant to liquefied gas tankers, including: .1 precautions to be taken when entering enclosed spaces .2 precautions to be taken before and during repair and maintenance work .3 safety measures for hot and cold work .4 electrical safety .5 ship/shore safety checklist	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures for entry into enclosed spaces are observed Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times Appropriate safety and protective equipment is correctly used

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Apply occupational health and safety precautions and measures *(continued)*	Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)		First aid do's and don'ts
Carry out fire-fighting operations	Tanker fire organization and action to be taken Special hazards associated with cargo handling and transportation of liquefied gases in bulk Fire-fighting agents used to extinguish gas fires Fixed fire-fighting foam system operations Portable fire-fighting foam operations Fixed dry chemical system operations Basic knowledge of spill containment in relation to fire-fighting operations	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulated shipboard conditions) and, whenever possible and practicable, in darkness	Initial actions and follow-up actions on becoming aware of an emergency conform with established practices and procedures Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures Clothing and equipment are appropriate to the nature of the fire-fighting operations The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions Extinguishment of fire is achieved using appropriate procedures, techniques and fire-fighting agents
Respond to emergencies	Basic knowledge of emergency procedures, including emergency shutdown	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The type and impact of the emergency is promptly identified and the response actions conform to the emergency procedures and contingency plans

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent pollution of the environment from the release of liquefied gases	Basic knowledge of the effects of pollution on human and marine life Basic knowledge of shipboard procedures to prevent pollution Basic knowledge of measures to be taken in the event of spillage, including the need to: .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures .3 prevent brittle fracture	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures designed to safeguard the environment are observed at all times

Table A-V/1-2-2

Specification of minimum standard of competence in advanced training for liquefied gas tanker cargo operations

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations	*Design and characteristics of a liquefied gas tanker* Knowledge of liquefied gas tanker design, systems, and equipment, including: .1 types of liquefied gas tankers and cargo tanks construction .2 general arrangement and construction .3 cargo containment systems, including materials of construction and insulation .4 cargo-handling equipment and instrumentation, including: .1 cargo pumps and pumping arrangements .2 cargo pipelines and valves .3 expansion devices .4 flame screens .5 temperature monitoring systems .6 cargo tank level-gauging systems .7 tank pressure monitoring and control systems .5 cargo temperature maintenance system	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Communications are clear, understood and successful Cargo operations are carried out in a safe manner, taking into account liquefied gas tanker designs, systems and equipment Pumping operations are carried out in accordance with accepted principles and procedures and are relevant to the type of cargo Cargo operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and avoid pollution of the marine environment

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	.6 tank atmosphere control systems (inert gas, nitrogen), including storage, generation and distribution systems .7 cofferdam heating systems .8 gas-detecting systems .9 ballast system .10 boil-off systems .11 reliquefaction systems .12 cargo Emergency Shut Down system (ESD) .13 custody transfer system Knowledge of pump theory and characteristics, including types of cargo pumps and their safe operation *Loading, unloading, care and handling of cargo* Knowledge of the effect of bulk liquid cargoes on trim and stability and structural integrity Proficiency in tanker safety culture and implementation of safety management requirements		Proper loading, stowage and unloading of liquefied gas cargoes ensures that stability and stress conditions remain within safe limits at all times Potential non-compliance with cargo-related procedures is promptly identified and rectified Actions taken and procedures followed correctly identify and make full use of appropriate shipboard equipment

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	Proficiency to apply safe preparations, procedures and checklists for all cargo operations, including: .1 post docking and loading: .1 tank inspection .2 inerting (O_2 reduction, dewpoint reduction) .3 gassing-up .4 cooling down .5 loading .6 deballasting .7 sampling, including closed-loop sampling .2 sea passage: .1 cooling down .2 pressure maintenance .3 boil-off .4 inhibiting .3 unloading: .1 unloading .2 ballasting .3 stripping and cleaning systems .4 systems to make the tank liquid-free .4 pre-docking preparation: .1 warm-up .2 inerting .3 gas-freeing .5 ship-to-ship transfer		Calibration and use of monitoring and gas-detection equipment is consistent with safe operational practices and procedures Procedures for monitoring and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established procedures

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Ability to safely perform and monitor all cargo operations (*continued*)	Proficiency to perform cargo measurements and calculations, including: .1 liquid phase .2 gas phase .3 On Board Quantity (OBQ) .4 Remain On Board (ROB) .5 boil-off cargo calculations Proficiency to manage and supervise personnel with cargo-related responsibilities		Personnel are allocated duties and informed of procedures and standards of work to be followed, in a manner appropriate to the individuals concerned and in accordance with safe operational practices
Familiarity with physical and chemical properties of liquefied gas cargoes	Knowledge and understanding of basic chemistry and physics and the relevant definitions related to the safe carriage of liquefied gases in bulk in ships, including: .1 the chemical structure of gases .2 the properties and characteristics of liquefied gases (including CO_2) and their vapours, including: .1 simple gas laws .2 states of matter .3 liquid and vapour densities .4 diffusion and mixing of gases .5 compression of gases .6 reliquefaction and refrigeration of gases	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Effective use is made of information resources for identification of properties and characteristics of liquefied gases and their impact on safety, environmental protection and vessel operation

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Familiarity with physical and chemical properties of liquefied gas cargoes (*continued*)	.7 critical temperature of gases and pressure .8 flashpoint, upper and lower explosive limits, auto-ignition temperature .9 compatibility, reactivity and positive segregation of gases .10 polymerization .11 saturated vapour pressure/reference temperature .12 dewpoint and bubble point .13 lubrication of compressors .14 hydrate formation .3 the properties of single liquids .4 the nature and properties of solutions .5 thermodynamic units .6 basic thermodynamic laws and diagrams .7 properties of materials .8 effect of low temperature – brittle fracture Understanding the information contained in a Material Safety Data Sheet (MSDS)		

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Take precautions to prevent hazards	Knowledge and understanding of the hazards and control measures associated with liquefied gas tanker cargo operations, including: .1 flammability .2 explosion .3 toxicity .4 reactivity .5 corrosivity .6 health hazards .7 inert gas composition .8 electrostatic hazards .9 polymerizing cargoes Proficiency to calibrate and use monitoring and gas-detection systems, instruments and equipment Knowledge and understanding of dangers of non-compliance with relevant rules/regulations	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Relevant cargo-related hazards to the vessel and to personnel associated with liquefied gas tanker cargo operations are correctly identified, and proper control measures are taken Use of gas-detection devices is in accordance with manuals and good practice
Apply occupational health and safety precautions	Knowledge and understanding of safe working practices, including risk assessment and personal shipboard safety relevant to liquefied gas tankers, including: .1 precautions to be taken when entering enclosed spaces (such as compressor rooms), including the correct use of different types of breathing apparatus	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures designed to safeguard personnel and the ship are observed at all times Safe working practices are observed and appropriate safety and protective equipment is correctly used Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns Correct use of breathing apparatus

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Apply occupational health and safety precautions *(continued)*	.2 precautions to be taken before and during repair and maintenance work, including work affecting pumping, piping, electrical and control systems .3 precautions for hot and cold work .4 precautions for electrical safety .5 use of appropriate Personal Protective Equipment (PPE) .6 precautions for cold burn and frostbite .7 proper use of personal toxicity monitoring equipment		
Respond to emergencies	Knowledge and understanding of liquefied gas tanker emergency procedures, including: .1 ship emergency response plans .2 cargo operations emergency shutdown procedure .3 emergency cargo valve operations .4 actions to be taken in the event of failure of systems or services essential to cargo operations .5 fire-fighting on liquefied gas tankers .6 jettisoning of cargo .7 enclosed space rescue	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The type and impact of emergency is promptly identified and the response actions conform with established emergency procedures and contingency plans The order of priority and the levels and timescales of making reports and informing personnel on board are relevant to the nature of the emergency and reflect the urgency of the problem Evacuation, emergency shutdown and isolation are appropriate to the nature of the emergency and implemented promptly

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Respond to emergencies (*continued*)	Actions to be taken following collision, grounding or spillage and envelopment of the ship in toxic or flammable vapour Knowledge of medical first-aid procedures and antidotes on board liquefied gas tankers, with reference to the Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG)		The identification of and actions taken in a medical emergency conform to current recognized first aid practice and international guidelines
Take precautions to prevent pollution of the environment	Understanding of procedures to prevent pollution of the environment	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Operations are conducted in accordance with accepted principles and procedures to prevent pollution of the environment
Monitor and control compliance with legislative requirements	Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL) and other relevant IMO instruments, industry guidelines and port regulations as commonly applied Proficiency in the use of the IBC and IGC Codes and related documents	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The handling of liquefied gas cargoes complies with relevant IMO instruments and established industrial standards and codes of safe working practices

GUIDANCE REGARDING PROVISIONS OF THE ANNEX TO THE STCW CONVENTION PART B

Chapter I

Guidance regarding general provisions

Section B-I/6

Guidance regarding training and assessment

Qualifications of instructors and assessors

1 Each Party should ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training or assessment of competence of seafarers, as required under the Convention, in accordance with the guidelines in this section.

In-service training and assessment

2 Any person, on board or ashore, conducting in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have received appropriate guidance in instructional techniques[*].

3 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have appropriate knowledge of instructional techniques and of training methods and practice.

4 Any person, on board or ashore, conducting an in-service assessment of the competence of a seafarer intended to be used in qualifying for certification under the Convention should have:

.1 received appropriate guidance in assessment methods and practice[*]; and

.2 gained practical assessment experience under the supervision and to the satisfaction of an experienced assessor.

5 Any person responsible for the supervision of the in-service assessment of competence of a seafarer intended to be used in qualifying for certification under the Convention should have a full understanding of the assessment system, assessment methods and practice[*].

* * * * *

[*] The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Chapter V
Guidance regarding special training requirements
for personnel on certain types of ships

Section B-V/1
Guidance regarding the training and qualifications of tanker personnel

Person with immediate responsibility

1 The term "person with immediate responsibility" as used in paragraphs 3 and 5 of regulation V/1-1 and paragraph 3 of regulation V/1-2 means a person being in a decision-making capacity with respect to loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations.

Familiarization training for all tanker personnel

2 All tanker personnel should undergo familiarization training on board and, where appropriate, ashore before being assigned to shipboard duties, which should be given by qualified personnel experienced in the handling and characteristics of oil, chemical or liquefied gas cargoes, as appropriate, and the safety procedures involved. The training should at least cover the matters set out in paragraphs 3 to 8 below.

Regulations

3 Knowledge of the ship's rules and regulations governing the safety of personnel on board a tanker in port and at sea.

Health hazards and precautions to be taken

4 Dangers of skin contact; inhalation and accidental swallowing of cargo; the harmful properties of the cargoes carried, personnel accidents and associated first aid; lists of do's and don'ts.

Fire prevention and fire fighting

5 Control of smoking and cooking restrictions; sources of ignition; fire and explosion prevention; methods of fire fighting; portable fire extinguishers and fixed installations.

Pollution prevention

6 Procedures to be followed to prevent air and water pollution and measures which will be taken in the event of spillage.

Safety equipment and its use

7 The proper use of protective clothing and equipment, resuscitators, escape and rescue equipment.

Emergency procedures

8 Familiarization with the emergency plan procedures.

Proof of qualification

9 The master of every oil, chemical and liquefied gas tanker should ensure that the officer or the person primarily responsible for the cargo possesses the appropriate certificate, issued or endorsed or validated as required by regulation V/1-1, paragraph 3; regulation V/1-1, paragraph 5 or regulation V/1-2, paragraph 3, as appropriate, and has had adequate recent practical experience on board an appropriate type of tanker to permit that officer or person to safely perform the duties assigned.

Guidance regarding approved onboard training

General

10 The purpose of qualifying shipboard service is to provide training and knowledge for the safe carriage of specific tanker cargoes.

11 To satisfy the experience appropriate to their duties on the type of tanker on which they serve referred to in regulation V/1-1, paragraph 4.2.2, regulation V/1-1, paragraph 6.2.2 and regulation V/1-2, paragraph 4.2.2, onboard training should:

.1 emphasize practical "hands on experience" and be related to the employment of the seafarer, i.e. the training of deck and engineering departments may be different;

.2 be under the supervision of personnel qualified and experienced in the handling, characteristics and safety procedures of the cargoes being carried by the vessel;

.3 be on board the tanker carrying products relative to the tanker Certificate of Proficiency/Endorsement being sought and should be such that the specialist equipment is brought into operation but may be on a ballast passage between cargoes for part of that period;

.4 take part in at least three loading and discharge operations; and[*]

.5 at least cover the matters set out in "Onboard training criteria" in paragraph 19.

12 The onboard training programme must in no way affect the safe running or the seaworthiness of the vessel.

Onboard training programme

13 The trainee should be carried in a supernumerary capacity (i.e. the trainee will have no other duties than that of undertaking the training programme and emergency duties).

[*] A loading or discharging operation is considered to be the loading or discharge of more than 60% of the total cargo tank capacity of the vessel. Loading/discharges of less than this quantity may be summed together to be equivalent to this quantity.

14 The programme of onboard training should be managed and coordinated by the company which manages the ship on which the seagoing service is to be performed and be a vessel nominated by the company as a training vessel.*

15 At all times, the trainee should be aware of two identifiable individuals who are immediately responsible for the management of the programme of onboard training. The first of these is a qualified seagoing officer, referred to as the "shipboard training officer", who, under the authority of the master, should organize and supervise the programme of training. The second should be a person nominated by the company, referred to as the "company training officer", who should have an overall responsibility for the training programme and for coordination with training organizations.

16 The trainee should be provided with an approved training record book to enable a comprehensive record of practical training and experience at sea to be maintained. The approved training record book should be laid out in such a way that it can provide detailed information about the tasks and duties which should be undertaken and the progress towards their completion. Duly completed and countersigned by the master, the approved record book will provide unique evidence that a structured programme of onboard training has been completed leading towards the issue of a relevant Certificate in Advanced Training for Tanker Cargo Operations.

17 During the approved onboard training programme the trainee should be instructed in the loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations of the tanker to ensure that the experience gained is at least equal to that which would be obtained in three months' normal service.

18 If the three-loading and three-unloading criteria cannot be achieved within the one-month onboard training period, then the period of onboard training should be extended until these criteria have been satisfactorily achieved.

Onboard training criteria

19 The onboard training should at least provide knowledge and experience, relevant to the applicable tanker type, of the following:

.1 Safety

.1.1 All tanker types
- **.1** Ship's safety-management system
- **.2** Cargo-specific fire-fighting equipment and procedures
- **.3** Cargo-specific first-aid procedures, including the Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG)
- **.4** Ship-/cargo-specific hazards, including smoking regulations, oxygen-depleted atmospheres, cargo hydrocarbon narcosis and toxicity
- **.5** Risk assessment systems
- **.6** Permit to work, including hot work and enclosed spaces entry procedures
- **.7** Use of personal protective equipment

.1.2 Additional for liquefied gas tankers
- **.1** Dangers and precautions related to handling and storage of cargoes at cryogenic temperatures

* A nominated training vessel is a trading vessel named by the company that is suitable for the purpose of this guidance, as applicable.

.2 Construction, cargo, cargo tanks and pipelines

.2.1 All tanker types
- **.1** Hull/tank construction and limitations
- **.2** Cargo connections
- **.3** Properties and hazards associated with the types of cargo being carried, including use of Material Safety Data Sheets
- **.4** The risks that cargo operations (such as purging/gas-freeing/tank cleaning) may have on the accommodation ventilation systems and actions to mitigate these risks
- **.5** Configuration of cargo and ballast system
- **.6** Pumps and associated equipment
- **.7** Specialist equipment associated with the cargo operations
- **.8** Particulars of the tanker's construction and how this affects the cargo operations

.2.2 Additional for liquefied gas tankers
- **.1** Use of segregation, separation and airlocks to maintain gas-safe areas
- **.2** Cargo tank, inter-barrier, insulation spaces, and pipeline relief valves and vapour venting systems
- **.3** Cargo vapour compressors and associated equipment

.3 Trim and stability

.3.1 All tanker types
- **.1** Tanker's stability information and calculating equipment
- **.2** Importance of maintaining stress levels within acceptable limits
- **.3** Dangers of free surface effect and "sloshing" effect

.4 Cargo operations

.4.1 All tanker types
- **.1** Pre-planning of loading/in-transit care, discharge/ballast operations
- **.2** Record keeping
- **.3** Start up/stopping procedures, including emergency shutdown
- **.4** Attention required for mooring arrangements during cargo operations
- **.5** Purging and inerting requirements and associated hazards
- **.6** Loading cargo, including topping-off operations
- **.7** Discharging cargo, including draining and stripping operations
- **.8** Monitoring of cargo during loading/discharging operations, including sampling where applicable
- **.9** Tank gauging and alarm systems
- **.10** Dangers from electrostatic discharge and its prevention
- **.11** Ballasting and deballasting operations
- **.12** Maintenance requirements, including coating inspections

.4.2 Additional for chemical tankers
- **.1** Polymerization, cargo compatibility, tank coating compatibility and other reactions
- **.2** Functions of inhibitors and catalysts
- **.3** Vapour/gas dispersion

.4.3 Additional for liquefied gas tankers
- **.1** Polymerization, cargo compatibility, tank coating compatibility and other reactions
- **.2** Functions of inhibitors and catalysts
- **.3** Causes of backpressure and pressure surge effects

.4 Use of boil-off gas as a fuel
.5 Vapour/gas dispersion
.6 Purging and cool-down operations
.7 Operation and maintenance of re-liquefaction equipment
.8 Understanding and use of the custody transfer system

.4.4 Additional for oil tankers
.1 Crude oil washing systems

.5 Tank washing/cleaning

.5.1 All tanker types
.1 Tank cleaning systems and equipment fitted on the tanker
.2 Pre-planning of tank washing/cleaning operations
.3 Tank washing procedures, including purging and inerting
.4 Control of slops/waste product
.5 Electro-static hazards
.6 Cleanliness requirements
.7 Maintenance requirements

.5.2 Additional for chemical tankers
.1 Removal of inhibitors and residues
.2 Use of absorption, cleaning agents and detergents

.5.3 Additional for liquefied gas tankers
.1 Hot-gassing/boil-off of liquid residues and regassification process

.6 Inert gas systems

.6.1 All tanker types

.1 Inerting system(s) and equipment fitted to the tanker
.2 Hazards associated with inerting of spaces, with particular reference to safe entry into tanks
.3 Purging, maintaining inert atmosphere and gas-freeing operations
.4 Maintenance requirements

.7 Pollution prevention and control

.7.1 All tanker types
.1 International, flag State and company regulations, documentation and plans
.2 Operation of the tanker's pollution-prevention systems and equipment, including discharge monitoring
.3 Operation of the tanker's pollution-containment equipment

.8 Gas-detection equipment and instruments

.8.1 All tanker types
.1 Use and calibration of personal, portable and fixed gas analysers, with particular reference to oxygen and hydrocarbon monitoring equipment
.2 Operation, maintenance and limitation of cargo tank level measuring, level alarm and temperature-measuring systems

.8.2 Additional for liquefied gas tankers
.1 Operation and maintenance of hull temperature measurement

.9 Publications

.9.1 All tanker types

.1 International, flag State and company publications relevant to the operation of the tanker, including SOLAS, MARPOL and applicable guidance manuals

.2 Operating and maintenance manuals specific to the equipment on board

.3 Established industrial standards and code of safe working practice (e.g., ICS, OCIMF, SIGTTO)

Section B-V/1-1

Guidance regarding training and qualifications of masters, officers and ratings on oil and chemical tankers

Oil tanker training

20 The training required by paragraphs 2.2 and 4.3 of regulation V/1-1 in respect of oil tankers should be set out in a training plan which clearly expresses, for all parties involved, the objectives of the training. Training may be given on board or ashore, where appropriate. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel[*].

21 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

Chemical tanker training

22 The training required by paragraphs 2.2 and 6.3 of regulation V/1-1 in respect of chemical tankers should be set out in a training plan which clearly expresses, for all parties involved, the objectives of the training. Training may be given on board or ashore, where appropriate. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel[*].

23 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

Section B-V/1-2

Guidance regarding training and qualifications of masters, officers and ratings on liquefied gas tankers

24 The training required by paragraphs 2.2 and 4.3 of regulation V/1-2 in respect of liquefied gas tankers should be set out in a training plan which clearly expresses, for all parties involved, the objectives of the training. Training may be given on board or ashore, where appropriate. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel[*].

[*] The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

25 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.