U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

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COMDTCHANGENOTE 16721
NVIC 10-14
May 7, 2020

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 10-14, CH-3

Subj: CHANGE 3 TO GUIDELINES ON QUALIFICATION FOR STCW ENDORSEMENTS AS MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL), NVIC 10-14, COMDTPUB 16721

Ref: (a) Guidelines on Qualification for STCW Endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level), NVIC 10-14, COMDTPUB 16721

1. PURPOSE. This Commandant Change Notice publishes CH-3 to NVIC 10-14.

2. ACTION. The Coast Guard will use NVIC 10-14 and 46 CFR 11.305 and 11.307 when establishing whether candidates are qualified to hold STCW endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level). Officers in Charge, Marine Inspection (OCMIs) should also bring this notice to the attention of the maritime industry within their zones of responsibility.

3. DIRECTIVES AFFECTED. With the release of this Commandant Change Notice, NVIC 10-14 is updated.

4. DISCUSSION.

   a. The Coast Guard has become aware of confusion over what requirements must be met for mariners who hold an STCW endorsement as Master on Vessels of 500 GT or More and Less Than 3,000 GT (Management Level) or Chief Mate on Vessels of 3,000 GT or More (Management Level) who are seeking a raise of grade to an STCW endorsement as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level) and for a raise of grade of STCW endorsements from Chief Mate to Master on Vessels of 3,000 GT or More (Management Level). This commandant change notice revises NVIC 10-14 to provide guidance for these raises of grade.

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b. The Coast Guard has extended the date for acceptance of assessments of mariner competence that are not signed by a Coast Guard approved Qualified Assessor. This commandant change notice revises NVIC 10-14 to reflect this extension.

c. Enclosure (1) of NVIC 10-14 contained grandfathering and transition provisions that expired on March 24, 2019. This commandant change notices removes those expired provisions.

5. 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 with applicable law. You can use an alternative approach if the approach satisfies the requirements of the applicable statutes and regulations.

6. MAJOR CHANGES.

a. Enclosures (1) of NVIC 10-14 is revised to add guidance on qualifying for STCW endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level) for mariners who hold an STCW endorsement as Master on Vessels of 500 GT or More and Less Than 3,000 GT (Management Level) or Chief Mate on Vessels of 3,000 GT or More (Management Level).

b. Enclosures (2) and (3) are revised to note the extension of the date for acceptance of assessments that were not signed by a Coast Guard approved Qualified Assessor.

c. Enclosure (1) is revised to remove transitional and grandfathering provisions that have expired.

7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS.

a. The development of this Commandant Change Notice and the general policies contained within it have been thoroughly reviewed under Department of Homeland Security Directive 023-01 and Environmental Planning COMDTINST 5090.1 (series) by the originating office, and are categorically excluded (CE) from further environmental analysis under paragraph #A3 in Table 3-1 of U.S. Coast Guard Environmental Planning Implementing Procedures 5090.1. Because this Commandant Change Notice implements, without substantive change, the applicable Commandant Instruction or other federal agency regulations, procedures, manuals, and other guidance documents, Coast Guard categorical exclusion #A3 is appropriate.

b. This Commandant Change Notice 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. All future specific actions resulting from the general policies in this Commandant Change Notice must be individually evaluated for compliance with the National Environmental Policy Act (NEPA), DHS and Coast Guard NEPA policy, and compliance with all other environmental mandates.

8. DISTRIBUTION. No paper distribution will be made of this Commandant Change Notice. An electronic version will be located at https://www.dco.uscg.mil/Our-Organization/NVIC/.

9. PROCEDURE. Remove and insert the following pages of NVIC 10-14:

Remove	Insert
Enclosure (1), CH-2	Enclosure (1), CH-3
Enclosure (2), Page 1 CH-2	Enclosure (2), Page 1 CH-3
Enclosure (3), Page 12 CH-2	Enclosure (3), Page 12 CH-3

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

11. FORMS/REPORTS. None.

12. REQUEST FOR CHANGES. All requests for changes or questions regarding implementation of Reference (a) and this Commandant Change Notice should be directed to the Mariner Credentialing Program Policy Division (CG-MMC-2), at (202) 372-2357 or MMCPolicy@uscg.mil. To obtain approval for a course or training program, contact the NMC at (888) 427-5662 or IAskNMC@uscg.mil.

/s/
R. V. TIMME
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Prevention Policy

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COMDTCHANGENOTE 16721
NVIC 10-14
August 3, 2018

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 10-14, CH-2

Subj: CH-2 TO GUIDELINES ON QUALIFICATION FOR STCW ENDORSEMENTS AS MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL), NVIC 10-14, COMDTPUB 16721

Ref: (a) Guidelines on Qualification for STCW Endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level), NVIC 10-14, COMDTPUB 16721

1. PURPOSE. This Commandant Change Notice publishes CH-2 to reference (a).

2. ACTION. The Coast Guard will use reference (a) and 46 CFR 11.305 and 11.307 when establishing whether candidates are qualified to hold STCW endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level). Officers in Charge, Marine Inspection (OCMIs) should also bring this notice to the attention of the maritime industry within their zones of responsibility.

3. DIRECTIVES AFFECTED. With the release of this Commandant Change Notice, reference (a) is updated.

4. DISCUSSION.

   a. Reference (a) provided a transition period until December 31, 2016, during which mariners could qualify for an endorsement using assessments from previous policies. The Coast Guard has become aware that some mariners who began qualifying using the former assessment scheme have yet to complete all of their assessments and would have to re-start their assessment process using the new assessment scheme. In order to minimize burden to these mariners, the Coast Guard is extending the period during which mariners may use the former assessment scheme.

   b. This Commandant Change Notice also removes provisions for renewal of endorsements and for grandfathering that expired on January 1, 2017.

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NON-STANDARD DISTRIBUTION:

5. 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 with applicable law. You can use an alternative approach if the approach satisfies the requirements of the applicable statutes and regulations.

6. MAJOR CHANGES. This Commandant Change Notice changes the guidance found in reference (a) concerning the transition from the former assessment scheme. The period during which the former assessment scheme may be used is being extended until March 24, 2019.

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 and Appendix A, DHS Instruction Manual 023-01-001-01, Revision 01, Implementation of the National Environmental Policy Act (NEPA). 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 #A3 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. All future specific actions resulting from the general policies in this NVIC must be individually evaluated for compliance with the National Environmental Policy Act (NEPA), DHS and Coast Guard NEPA policy, and compliance with all other environmental mandates.

8. DISTRIBUTION. No paper distribution will be made of this Commandant Change Notice. An electronic version will be located at https://www.dco.uscg.mil/Our-Organization/NVIC/.

9. PROCEDURE. Remove and insert the following pages of Reference (a):

Remove	Insert
Enclosure (1)	Enclosure (1) CH-2
Enclosure (2), Page 1 CH-1	Enclosure (2), Page 1 CH-2
Enclosure (3), Page 12 CH-1	Enclosure (3), Page 12 CH-2
Enclosure (4), Page 1	Enclosure (4), Page 1 CH-2

10. 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 the Federal Records Act (44 U.S.C. 3101 et seq.), NARA requirements, and the Information and Life Cycle Management Manual, COMDTINST

M5212.12 (series). This policy does not create significant or substantial change to existing records management requirements.

11. FORMS/REPORTS. None.

12. REQUEST FOR CHANGES. Requests for changes or questions regarding implementation of Reference (a) and this Commandant Change Notice should be directed to the Mariner Credentialing Program Policy Division (CG-MMC-2), at (202) 372-2357 or MMCPolicy@uscg.mil. To obtain approval for a course or training program, contact the NMC at (888) 427-5662 or IAskNMC@uscg.mil.

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COMDTCHANGENOTE 16721
NVIC 10-14
February 21, 2017

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 10-14, CH 1

Subj: CH-1 TO GUIDELINES ON QUALIFICATION FOR STCW ENDORSEMENTS AS MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL), NVIC 10-14, COMDTPUB 16721

Ref: (a) Guidelines on Qualification for STCW Endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level), NVIC 10-14, COMDTPUB 16721

1. PURPOSE. This Commandant Change Notice publishes change one to Reference (a), Guidelines on Qualification for STCW Endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level), NVIC 10-14, COMDTPUB 16721.

2. ACTION. Officers in Charge, Marine Inspection (OCMIs) should bring this Commandant Change Notice to the attention of the maritime industry within their zones of responsibility. Internet release is authorized.

3. DIRECTIVES AFFECTED. With the release of this Commandant Change Notice, Reference (a) is updated.

4. DISCUSSION.

   a. This Commandant Change Notice changes the guidance found in Reference (a) concerning qualifying for STCW endorsements as Master or Chief Mate on Vessels of 3,000 GT or More.

   b. After publication of Reference (a), the Coast Guard recognized that some of the model assessments are duplicative of training and assessment done in Coast Guard approved courses required for an endorsement as Master or Chief Mate on Vessels of 3,000 GT or More.

   c. If a mariner has begun qualifying for an endorsement as Master or Chief Mate on Vessels of 3,000 GT or More using the original assessment guidelines, and the vessel on which they are serving does not support one or more assessments from the original guidelines, mariners may

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substitute the corresponding assessment from this CH-1. The Coast Guard will continue to accept demonstrations of competence using the original guidelines (Enclosure (2)) and documented using the original Record of Assessment (Enclosure (3)) until December 31, 2017.

5. 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 with applicable law. You can use an alternative approach if the approach satisfies the requirements of the applicable statutes and regulations.

6. MAJOR CHANGES.

   a. This CH-1 to NVIC 10-14 revises Enclosures (2) and (3). Enclosure (2) is revised to note that applicable assessments can be demonstrated by successful completion of a Coast Guard approved course required by regulation. The changes specify which knowledge, understanding and proficiency (KUPs) the courses meet. For these KUPs, the mariner need only present a course completion certificate as evidence to demonstrate the assessment. It is important to note that these changes do not impose new training requirements.

   b. The assessments in Enclosure (2) are also revised to omit excessive detail that is not necessary to establish the competence of the candidate.

   c. Enclosure (2) is revised to remove duplication with assessments in other NVICs. Three assessments in Enclosure (2) were noted as being duplicative of assessments done at the opertional level for endorsements as Officer in Charge of a Navigational Watch (OICNW). Two of these are deleted in this CH-1, and the third has been revised to be more appropriate to the management level.

   d. Enclosure (3) is revised to be consistent with changes to Enclosure (2). Changes from the original guidelines in Enclosures (2) and (3) are indicated by a vertical line to the left of the changed text.

7. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS.

   a. The development of this Commandant Change Notice 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 (series). 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 Commandant Change Notice 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. All future specific actions resulting from the general policies in this NVIC must be individually evaluated for compliance with the

National Environmental Policy Act (NEPA), DHS and Coast Guard NEPA policy, and compliance with all other environmental mandates.

8. DISTRIBUTION. No paper distribution will be made of this Commandant Change Notice. An electronic version will be located at http://www.uscg.mil/hq/cg5/nvic.

9. PROCEDURE. Remove and insert the following pages:

Remove	Insert
Remove Enclosure (2)	Insert CH-1 Enclosure (2)
Remove Enclosure (3)	Insert CH-1 Enclosure (3)

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

11. FORMS/REPORTS. None.

12. REQUEST FOR CHANGES. All requests for changes or questions regarding implementation of this Commandant Change Notice 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 an alternative to the assessments described in Enclosure (2), contact the NMC at (888) 427-5662 or IAskNMC@uscg.mil.

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COMDTPUB P16721
NVIC 10-14
April 28, 2014

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 10-14

Subj: GUIDELINES ON QUALIFICATION FOR STCW ENDORSEMENTS OF MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

Ref: (a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW), Regulation II/2.1 and II/2.2, and Section A-II/2 of the STCW Code, incorporated into regulations at 46 Code of Federal Regulations (CFR) 11.102

1. PURPOSE. This Navigation and Vessel Inspection Circular (NVIC) provides guidance on qualification and revalidation of STCW endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level).

2. ACTION. The Coast Guard will use this NVIC and 46 CFR 11.305 and 11.307 when establishing whether candidates are qualified to hold STCW endorsements as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level). 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/cg5/nvic/. The Coast Guard will distribute it by electronic means only.

3. DIRECTIVES AFFECTED. This NVIC supersedes National Maritime Center (NMC) Policy Letter 04-02, *Applicants for Ocean or Near Coastal Master and Chief Mate Licenses for Service on Vessels of 3000 or More Gross Tonnage (GT) with Qualifying Service or Training Beginning on or After 1 August 1998 and All Applicants Beginning 1 February 2002*.

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4. BACKGROUND.

   a. The STCW Convention and STCW Code set forth standards for training and certification for merchant mariners, including mariners serving as Master and Chief Mate on ships of 3,000 GT or more.

   b. In order to implement the 1995 amendments to STCW, the Coast Guard published NMC Policy Letter 04-02 providing guidance on how mariners may qualify for endorsements as Master and Chief Mate for service on ships of 3,000 GT or more.

   c. 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.

   d. 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 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 and this NVIC supersedes NMC Policy Letter 04-02.

5. DISCUSSION.

   a. Policy regarding endorsement as Master and Chief Mate on Vessels of 3,000 GT or More (Management Level) is located in this NVIC. Enclosure (1) discusses specific requirements for the endorsements. Enclosure (2) contains the national assessment guidelines for these endorsements. Enclosure (3) may be used to record completion of assessments. Enclosure (4) provides a transition scheme for mariners who have begun qualifying for these endorsements using the assessments in the now cancelled NMC Policy Letter 04-02. Enclosure (5) provides relevant excerpts from the STCW Convention and STCW Code.

   b. When assessing demonstrations of skills, Qualified Assessors (QAs) should use the guidelines in Enclosure (2) or an approved alternative. Shipboard QAs may make minor changes to the assessments in Enclosure (2) to reflect differences in shipboard equipment and operating procedures. QAs may not make other changes unless prior approval is given by the National Maritime Center (NMC) (46 CFR 11.301(a)(1)(i)).

   c. A training institution applying for approval of a course or program that leads to an endorsement as Master or Chief Mate should state either that the guidelines in Enclosure (2) will apply, or provide the guidelines it proposes to use. Under 46 CFR 10.402(e), a training institution must submit any deviations from these guidelines to the Coast Guard for approval before use.

d. When applying for an endorsement, the applicant need only submit the completed Enclosure (3), Record of Assessment (or equivalent evidence of demonstration of competency) to the Coast Guard. The Coast Guard recommends that the applicant retain a copy of Enclosure (3) (or equivalent evidence of demonstration of competency) for his or her records.

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 with 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 (series). 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 U.S.C. 3101 et seq., National Archives and Records Administration 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 an alternative to the assessments described in Enclosure (2), contact the NMC at (888) 427-5662 or IAskNMC@uscg.mil..

J. A. SERVIDIO
Rear Admiral, U. S. Coast Guard
Assistant Commandant for Prevention Policy

Encl: (1) Discussion of Qualification Requirements for Endorsement as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)
(2) Assessment Guidelines for Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)
(3) Record of Assessment for Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)
(4) Transition from the Former Assessment Scheme for Master and Chief Mate on Vessels of 3,000 GT or More (Management Level)
(5) Excerpts from STCW Convention and STCW Code

DISCUSSION OF QUALIFICATION REQUIREMENTS FOR ENDORSEMENT AS MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

1. GENERAL. This enclosure provides guidance for deck officers to qualify for International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) endorsements as Master or Chief Mate on vessels of 3,000 GT or more in accordance with Section A-II/2 of the STCW Code, 46 Code of Federal Regulations (CFR) 11.305 and 46 CFR 11.307.

   As specified in 46 CFR 11.201(a), an applicant for an STCW endorsement must hold the appropriate national endorsement. To be eligible for an STCW endorsement as Master on vessels of 3,000 GT or more, mariners must hold or qualify for a national endorsement as Master Unlimited Tonnage Oceans or Near Coastal or as Master (OSV) 1,600 GRT/3,000 GT or More Oceans or Near Coastal. To be eligible for an STCW endorsement as Chief Mate on vessels of 3,000 GT or more, mariners must hold or qualify for a national endorsement as Chief Mate Unlimited Tonnage Oceans or Near Coastal, Master (OSV) 1,600 GRT/3,000 GT or More Oceans or Near Coastal, or as Chief Mate (OSV) 1,600 GRT/3,000 GT or More Oceans or Near Coastal.

2. SEA SERVICE, TRAINING, AND DEMONSTRATIONS.

   a. In accordance with 46 CFR 11.305 and STCW Regulation II/2, an applicant for an STCW endorsement as Master on Vessels of 3,000 GT or More (Management Level) must provide evidence of:

      1) 36 months of service as officer in charge of a navigational watch on vessels operating in oceans, near coastal waters and/or Great Lakes; however, this period may be reduced to not less than 24 months if not less than 12 months of such service has been served as Chief Mate. Service on inland waters, bays, or sounds that are navigable waters of the United States may be substituted for up to 50 percent of the total required service. Experience gained in the engine department may be creditable for up to 3 months of the required service;

      2) Meeting the standard of competence specified in Section A-II/2 of the STCW Code (incorporated by reference, see 46 CFR 11.102). This may be done by completing the assessments in Enclosure (2), or an approved equivalent alternative; and

      3) Having satisfactorily completed approved training specified in in the following subject areas:

         i) Advanced Ship Handling (46 CFR 11.305(a)(3)(i));

         ii) Advanced Stability (46 CFR 11.305(a)(3)(ii));

         iii) Advanced Meteorology (46 CFR 11.305(a)(3)(iii));

         iv) Leadership and Managerial Skills (46 CFR 11.305(a)(3)(iv));

         v) Search and Rescue (46 CFR 11.305(a)(3)(v));

         vi) Management of Medical Care (46 CFR 11.305(a)(3)(ix));

vii) Automatic Radar Plotting Aids (ARPA), in order to serve on a vessel with this equipment (46 CFR 11.305(a)(3)(vi));

viii) Electronic Chart Display Information Systems (ECDIS), in order to serve on a vessel with this equipment (46 CFR 11.305(a)(3)(vii)); and

ix) Global Maritime Distress and Safety System (GMDSS), in order to serve on a vessel with this equipment (46 CFR 11.305(a)(3)(viii)).

b. As specified in 46 CFR 11.307 and STCW Regulation II/2, an applicant for an STCW endorsement as Chief Mate on Vessels of 3,000 GT or More (Management Level) must provide evidence of:

1) 12 months of service as the Officer in Charge of a Navigational Watch (OICNW) on vessels operating in oceans, near coastal waters and/or Great Lakes. Service on inland waters, bays, or sounds that are navigable waters of the United States may be substituted for up to 50 percent of the total required service. Experience gained in the engine department on vessels may be creditable for up to 1 month of the required service;

2) Meeting the standard of competence specified in Section A-II/2 of the STCW Code (incorporated by reference, see §11.102). This may be done by completing the assessments in Enclosure (2), or an approved equivalent alternative; and

3) Having satisfactorily completed approved training in the following subject areas:

i) Advanced Ship Handling (46 CFR 11.307(a)(3)(i));

ii) Advanced Stability (46 CFR 11.307(a)(3)(ii));

iii) Advanced Meteorology (46 CFR 11.305(a)(3)(iii));

iv) Leadership and Managerial Skills (46 CFR 11.305(a)(3)(iv));

v) Search and Rescue (46 CFR 11.307(a)(3)(v));

vi) Management of Medical Care (46 CFR 11.307(a)(3)(ix));

vii) ARPA, in order to serve on a vessel with this equipment (46 CFR 11.307(a)(3)(vi));

viii) ECDIS, in order to serve on a vessel with this equipment (46 CFR 11.307(a)(3)(vii)); and

ix) GMDSS, in order to serve on a vessel with this equipment (46 CFR 11.307(a)(3)(viii)).

c. To qualify for an STCW endorsement as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level), mariners must provide evidence of meeting the standard of competence for Basic Training (BT) (46 CFR 11.302) and Advanced Firefighting (46 CFR 11.303).

d. Operational-level training and assessments are not required if the mariner holds or has previously held an STCW endorsement as OICNW or Master valid on vessels other than offshore supply vessels of 500 GT or more issued after 1997. Mariners who have not held an STCW endorsement as OICNW for 500

GT or More issued after 1997 must also meet the requirements of 46 CFR 11.309 for qualification as OICNW.

e. Mariners may qualify for endorsements that are limited to near coastal waters by meeting all of the qualification requirements for the non-limited endorsement, with one exception. Assessments that are not relevant to near coastal voyages may be omitted. The assessments that may be omitted are as noted in Enclosure (2). Mariners may remove the near coastal limitation by completing the assessments that were not completed for the near coastal limited endorsement.

3. RENEWAL OF ENDORSEMENT. Assessment is not required for renewal of endorsement. To renew an endorsement as Master or Chief Mate on Vessels of 3,000 GT or More, mariners must provide evidence of:

a. Meeting the requirements of 46 CFR 10.227 to renew their national officer endorsement(s); and

b. Maintaining the standard of competence in the following:

1) Basic Training as specified in 46 CFR 11.302(b); and

2) Advanced Firefighting as specified in 46 CFR 11.303(b).

4. RAISE OF GRADE.

a. Mariners holding an STCW endorsement as Master of Vessels of 500 GT or More and Less Than 3,000 GT (Management Level) must provide evidence of the following to qualify for an STCW endorsement as or Master or Chief Mate of Vessels of 3,000 GT or More (Management Level):

1) Providing evidence of at least 6 months of sea service as Master of Vessels of 500 GT or More and Less Than 3,000 GT as specified in 46 CFR 11.305(d) (for Master of Vessels of 3,000 GT or More) and 46 CFR 11.307(d) (for Chief Mate of Vessels of 3,000 GT or More);

2) Completion of the approved training specified in 46 CFR 11.305(a)(3) or 11.307(a)(3), as appropriate. This training is described in paragraph 2.a.3 above (for Master of Vessels of 3,000 GT or More) or paragraph 2.b.3 above (for Chief Mate of Vessels of 3,000 GT or More). Mariners who have previously completed any of these courses do not need to complete the course again, provided that the approval of the course they completed was not limited to endorsements for less than 3,000 GT; and

3) Meeting the standard of competence specified in Section A-II/2 of the STCW Code. This may be done by completing the assessments in Enclosure (2), or an approved equivalent alternative. Mariners holding an endorsement as Master of Vessels of 500 GT or More and Less Than 3,000 GT (Management Level) do not need to complete assessments that are marked with "Note 1."

b. Mariners holding an STCW endorsement as Chief Mate of Vessels of 3,000 GT or More (Management Level) must meet the service described in paragraph 2.a.1 above to qualify for an endorsement as Master on Vessels of 3,000 GT or More (Management Level). Additional training and assessment is not required.

Assessment Guidelines for Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)

Standard of Competence

Every candidate for an STCW endorsement as Master or Chief Mate on Vessels of 3,000 GT or More (Management Level) must provide evidence of having achieved the required standard of competence as specified in Table A-II/2 of the STCW Code (46 CFR 11.305(a)(2) and 11.307(a)(2)). The table below is adopted from Table A-II/2 of the STCW Code (found in Enclosure (5)) to assist the candidate and assessor in the demonstration of competency.

Practical Skill Demonstrations

These assessment guidelines establish the conditions under which the assessment will occur, the performance or behavior the candidate is to accomplish, and the standards against which the performance is measured.

Qualified Assessors

A shipboard Qualified Assessor who witnesses a practical demonstration may sign the appropriate blocks and pages in the Record of Assessment in Enclosure (3) or an equivalent record. All assessments must be signed by a qualified assessor approved by the Coast Guard in accordance with 46 CFR 10.405. In order to facilitate the transition to this new requirement, the Coast Guard will accept assessments that have been demonstrated in the presence of and signed by an assessor who has not been Coast Guard approved until December 31, 2021, provided that the assessor meets the professional requirements in 46 CFR 10.405(a)(3) to assess competence for the specific endorsement. Assessors must be in possession of the level of endorsement, or other professional credential, which provides proof that he or she has attained a level of experience and qualification equal or superior to the relevant level of knowledge, skills, and abilities to be assessed (46 CFR 10.405(a)(3)). Until June 30, 2022, the Coast Guard will accept assessments signed before January 1, 2022, by mariners who hold an appropriate national endorsement and have at least 1 year of experience as Master or Chief Mate on seagoing vessels of at least 1,600 GRT and/or 3,000 GT. For assessments signed on a military vessel, the assessor should have experience as Commanding Officer (CO) or Executive Officer (XO) on seagoing vessels of at least 200 GRT or 500 GT. Military assessors should only conduct assessments that are within their personal experience and are relevant to the vessel on which they are conducted. For example, assessments involving the carriage of cargo should not be performed on a vessel that does not carry cargo and/or by an assessor who lacks experience on cargo-carrying vessels. After December 31, 2021, QAs must be approved by the National Maritime Center to conduct the assessment (46 CFR 10.405). Qualified military personnel need not be approved QAs and may continue to sign assessments after December 31, 2021.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Notes

Course The assessment is satisfied by successful completion of a Coast Guard approved or accepted course.

Note 1 Mariners holding STCW endorsements as Master or Chief Mate of 500 GT or More and Less Than 3,000 GT do not need to complete these assessments.

Note 2 Not required for an endorsement limited to near coastal waters. These assessments must be completed to remove the near coastal limitation.

ARPA Not required for mariners serving exclusively on vessels not fitted with an Automatic Radar Plotting Aid (ARPA); a limitation will be added to the endorsement indicating that it is not valid for service on vessels equipped with ARPA.

ECDIS Not required for mariners serving exclusively on vessels not fitted with an Electronic Chart Display and Information System (ECDIS); a limitation will be added to the endorsement indicating that it is not valid for service on vessels equipped with ECDIS.

Assessment Guidelines for Master or Chief Mate on Vessels of 3,000 GT or More (Management Level)

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.1.A Create a voyage plan *Note 1*	Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks, taking into account .1 The General Provisions on Ships' Routing .2 Restricted waters .3 Meteorological conditions .4 Ice .5 Restricted visibility .6 Traffic separation schemes .7 Vessel traffic service (VTS) areas .8 Areas of extensive tidal effects .9 Ship Reporting Systems and VTS procedures	On a **vessel** or in a navigational laboratory, and provided with chart catalogs, charts, nautical publications, and vessel particulars,	the candidate creates a voyage plan for a coastwise voyage of at least 600 nm, a segment of which must be at night and in restricted waters.	The candidate's plan: 1. Considers and utilizes: a. The condition of the vessel, equipment, operational limitations, draft and maneuvering characteristics; b. Any special characteristics of the cargo and its stowage; c. Crew members' competency and rest status; d. Up-to-date ship's certificates and documents; e. Up-to-date charts of proper scale, and the latest notices to mariners and radio navigational warnings; f. Up-to-date coast pilots, sailing directions, and other information sources appropriate for the voyage; g. Relevant routing guides; h. Up-to-date tide and current tables and atlases; i. Weather information; j. Weather routing services; k. Ship reporting systems, VTS and environmental protection measures; l. Vessel traffic density for the route; m. Pilotage requirements and information exchange; and n. Port information, including emergency response capability. *Continued on next page*

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.1.A Create a voyage plan *Cont'd* *Note 1*					*Continued from previous page* 2. Contains: a. Courses plotted on the appropriately scaled charts noting the ETA at each way point, including the final way point; b. Courses and distances between way points which were correctly calculated and indicated on the charts; c. The most direct route that avoids all hazards to navigation by the margin of safety of 3.0 nm, where possible; d. Areas of all required speed changes; e. Minimum under keel clearances in critical areas; positions requiring a change of machinery status; f. Waypoints of all course changes; g. Methods and frequency of position fixing, including areas requiring the highest accuracy; h. Positions and radio hailing frequencies or channels where port authorities, pilots and VTS services must be notified are noted on the relevant chart; i. State of the tide and currents at the port of departure for the times of departure and transit were determined; and j. A contingency plan for alternative actions in cases of emergency

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.2.A Great circle sailing *Note 1* *Note 2*	Plan a voyage and conduct navigation	Voyage planning and navigation	On a **vessel** or in a navigation laboratory, given a latitude and longitude of departure and latitude and longitude of arrival at least 3,000 nm apart, and using a calculator (non-programmable or programmable), sight reduction tables, and/or U.S. Pub. No. 9 Tables,	the candidate calculates the great circle route between the point of departure and the point of arrival.	1. The candidate's great circle route contains the: a. Initial course, which is within ± 1.0° of the assessor's solution; b. Total distance, which is within 1.0 nm of the assessor's solution; and c. Position of the vertex, which is within 1.0 nm of the assessor's position; 2. The candidate's positions of points along the great circle at intervals of 5.0° (300 miles) are within 1.0 nm of the assessor's solution.
1.2.B Mercator sailing initial course and total distance *Note 1* *Note 2*	Plan a voyage and conduct navigation	Voyage planning and navigation	On a **vessel** or in a navigation laboratory, given a latitude and longitude of departure and a latitude and longitude of arrival at least 1,000 nm apart, and using a calculator (non-programmable or programmable), sight reduction tables, and/or Pub. No. 9 Tables,	the candidate calculates the Mercator course and distance between the point of departure and the point of arrival.	The candidate's: 1. Initial course is within ± 1.0° of the assessor's solution; and 2. Total distance is within 1.0 nm of the assessor's solution.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
1.2.C Mercator sailing final position *Note 1* *Note 2*	Plan a voyage and conduct navigation	Voyage planning and navigation	On a **vessel** or in a navigation laboratory , given a latitude and longitude of departure and a course and distance for a passage of at least 1,000 nm, and using a calculator (non-programmable or programmable), and/or Publication No. 9 Tables,	the candidate calculates the final position using Mercator sailing.	The candidate's final position is within ± 1.0 nm of the assessor's solution.
2.1.A Meridian transit (other than sun) *Note 1* *Note 2*	Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions by celestial observations	On a **vessel at sea**, with a celestial body other than the sun at upper transit and a clear horizon,	the candidate measures the altitude of the body as it crosses the meridian of the observer and calculates the latitude of the vessel.	The candidate's latitude is calculated at meridian passage and must be within ± 1.0 nm of the assessor's solution. **NOTE**: The assessor may permit the use of an Ex-Meridian to compensate for weather, cloud cover, or other reason **that** the assessor deems necessary.
2.1.B Star identification *Note 1* *Note 2*	Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions by celestial observations	On a **vessel** or in a navigational laboratory, using a star finder or navigational publication, such as Pub. 249, and given the times of observation, altitudes and azimuths of three unknown stars,	the candidate identifies the three stars.	The candidate correctly identifies the three stars within 20 minutes.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
2.1.C Star selection *Note 1* *Note 2*	Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions by celestial observations	On a vessel or in a navigational laboratory, given the time of observation,	the candidate identifies the best three stars or planets to obtain a fix.	The candidate's identification is completed within 20 minutes and the bodies identified: 1. Are the brightest available; and 2. Have the greatest crossing angles possible between each other when plotted.
2.2.A GPS routing *Note 1* *Note 2*	Determine position and the accuracy of resultant position fix by any means	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks: Routing in accordance with the General Principles on Ship's Routing	On a **vessel**, on a simulator, or in a navigation laboratory, using a GPS receiver which meets IMO standards, and given a port of departure and a port of arrival at least 2,000 nm apart in a generally east -west direction, with at least 3 legs, which include both rhumb line and great circle legs,	the candidate enters the waypoints and route for the voyage into the GPS.	The candidate's: 1. Way points are correctly determined, entered, and saved; 2. Route is correctly entered and saved; and 3. Great circle or rhumb line legs are correctly designated.
3.1.A Amplitude of celestial body *Note 1*	Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses	On a **vessel at sea**, with a celestial body other than the sun on either the visible horizon or the celestial horizon,	the candidate takes a compass bearing of the body.	The candidate: 1. Takes the bearing when the repeater is level and notes the: a. Time of the reading; b. Compass bearing (magnetic and/or gyro-compass); c. Determined true bearing of the body; and d. Compass error as determined by comparing the true bearing to the compass bearing; and 2. Calculates a solution that is within ± 1.0° of the assessor's solution.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
3.2.A Write a standing order for compasses *Note 1*	Determine and allow for compass errors	Knowledge of the principles of magnetic and gyro-compasses	On a **vessel** or in a navigational laboratory, when asked to write a standing order regarding onboard compasses,	the candidate writes a standing order regarding the onboard compasses.	The candidate's standing order includes: 1. Comparison of magnetic and gyro-compasses; 2. Frequency of comparisons and error determination are increased when near navigational hazards; 3. Comparison of master gyro and slaves; 4. Listing all slave compasses to be checked including the emergency steering stand) ; and 5. Effect of magnetic objects near magnetic compass.
3.3.A Operation and care of gyro-compass *Note 1*	Determine and allow for compass errors	Understanding of systems under the control of the master gyro-compass and a knowledge of the operation and care of the main types of gyro-compass	On a **vessel** or in a navigational laboratory, when asked to write an instruction regarding onboard compasses,	the candidate writes an instruction for the watch officers regarding the onboard compasses.	The instruction includes: 1. Systems affected by a malfunction of the master gyro-compass; 2. How a malfunction of the master gyro-compass manifests itself in each system; 3. Location of instructions for starting the master gyro-compass and simulating the procedure; 4. Location of instructions for shutting down the master gyro-compass and simulating the procedure; 5. Procedures to follow in the event of a master gyro-compass malfunction; 6. Procedures to follow in the event of a disconnect of system requiring input from the master gyro-compass; and 7. Routine maintenance procedures including replacement of the sensitive element and any lubrication needed.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
4.1 Search and Rescue *Course Note 1*	Co-ordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	This KUP is demonstrated by successful completion of the approved *Search and Rescue* course specified in 46 CFR 11.305(a)(3)(v) or 46 CFR 11.307(a)(3)(v).		
5.1 Operate ARPA Controls and functions *Course ARPA*	Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions for collision avoidance and for directing the safe navigation of the ship	These KUPs are demonstrated by successful completion of the approved ARPA course specified in 46 CFR 11.305(a)(3)(vi) and 11.307(a)(3)(vi) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ARPA.		

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
5.2.A Blind pilotage planning *Note 1*	Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making	Blind pilotage planning Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions for collision avoidance and for directing the safe navigation of the ship	On a **vessel** or in a navigational laboratory,	the candidate writes a standing order regarding navigation in restricted visibility.	The candidate's standing order includes: 1. Conditions constituting restricted visibility; 2. Informing the Master; 3. Traffic considerations; 4. Following the appropriate rules of the road; 5. Safe speeds; 6. Engineroom alert level (SBE, etc); 7. Appropriate signals being used; 8. Posting of lookouts; 9. Operation and use of RADAR and other electronic surveillance devices available; and 10. Positioning of vessel in the seaway.
5.3.A Plan and execute a passage *Note 1*	Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making	The interrelationship and optimum use of all navigational data available for conducting navigation	On a **vessel** underway or on a simulator, using a radar and/or ARPA, with multiple targets on the 12.0 mile range scale, in congested coastal waters with reduced visibility, while transiting a traffic separation scheme, in the presence of current, and with a least one course change of not less than 30° in the route,	the candidate plans and executes a passage through the area of transit, using the principles of bridge resource management.	The candidate's plan and passage includes: 1. Assigning BRM roles; 2. Monitoring the vessel's progress; 3. Communicating clearly and effectively; 4. Controlling passage for safe navigation and collision avoidance; and, 5. Ensuring that all team members use all relevant navigational data.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
6.1 ECDIS licensing and updating *Course ECDIS*	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including manage the procurement, licensing and updating of chart data and system software to conform to established procedures	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		
6.2 Update ECDIS system version *Course ECDIS*	Maintain the safety of navigation through use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including system and information updating, including the ability to update ECDIS system version in accordance with vendor's product development	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
6.3 ECDIS system configure and backup *Course ECDIS*	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including create and maintain system configuration and backup files	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		
6.4 Create and maintain ECDIS log files *Course ECDIS*	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including create and maintain log files in accordance with established procedures	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
6.5 Maintain ECDIS route plan files *Course ECDIS*	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including create and maintain route plan files in accordance with established procedures	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		
6.6 ECDIS functions and alarms *Course ECDIS*	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Management of operational procedures, system files and data, including use ECDIS log-book and track history functions for inspection of system functions, alarm settings and user responses	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
6.7 ECDIS playback and route planning *Course ECDIS*	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	Use ECDIS playback functionality for passage review, route planning and review of system functions	This KUP is demonstrated by successful completion of the approved ECDIS course specified in 46 CFR 11.305(a)(3)(vii) and 11.307(a)(3)(vii) or if the mariner holds an STCW endorsement as OICNW, Chief Mate, or Master that is valid for vessels equipped with ECDIS.		
7.1 Forecast weather for next 24 hours *Course Note 1*	Forecast weather and oceanographic conditions	Ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions and information received by weather fax	This KUP is demonstrated by successful completion of the approved Advanced Meteorology course specified in 46 CFR 11.305(a)(3)(iii) and 11.307(a)(3)(iii).		
7.2 Identify fronts *Course Note 1*	Forecast weather and oceanographic conditions	Knowledge of characteristics of various weather systems, including tropical revolving storms and avoidance of storm centers and the dangerous quadrants	This KUP is demonstrated by successful completion of the approved Advanced Meteorology course specified in 46 CFR 11.305(a)(3)(iii) and 11.307(a)(3)(iii).		

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
7.3 Ocean currents *Course Note 1*	Forecast weather and oceanographic conditions	Knowledge of ocean current systems	This KUP is demonstrated by successful completion of the approved Advanced Meteorology course specified in 46 CFR 11.305(a)(3)(iii) and 11.307(a)(3)(iii).		
7.4.A Calculate height of tide *Note 1*	Forecast weather and oceanographic conditions	Ability to calculate tidal conditions Use all appropriate nautical publications on tides and currents	On a **vessel** or in a navigation laboratory, given a zone time at a subordinate location, and using an appropriate nautical publication,	the candidate correctly calculates the height of the tide.	The candidate's calculation is within ±0.5 feet of the assessor's solution.
7.4.B Calculate tidal current *Note 1*	Forecast weather and oceanographic conditions	Ability to calculate tidal conditions Use all appropriate nautical publications on tides and currents	On a **vessel** or in a laboratory, given a zone time at a subordinate location, and using an appropriate nautical publication,	the candidate correctly calculates the tidal current.	The candidate's calculation is within ±0.5 knots and ±5.0° of the assessor's solution.
7.4.C Calculate time for desired height of tide *Note 1*	Forecast weather and oceanographic conditions	Ability to calculate tidal conditions Use all appropriate nautical publications on tides and currents	On a **vessel** or in a navigation laboratory, given a desired height of the tide at a subordinate location, and using an appropriate nautical publication,	the candidate correctly calculates the time period when the tidal rise creates a temporary situation where there is sufficient depth of water for the vessel to safely transit a given area where the chart datum indicates insufficient depth of water for the transit.	The candidate's calculation is within ± 5 minutes of the assessor's solution. **NOTE:** At the assessor's discretion, the candidate may calculate the time period when the tidal drop creates a temporary situation where there is insufficient depth of water for the vessel to safely transit a given area where the chart datum indicates sufficient depth of water for the transit.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
8.1 Beaching a ship *Course*	Respond to navigational emergencies	Precautions when beaching a ship	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
8.2 Grounding a ship *Course*	Respond to navigational emergencies	Action to be taken if grounding is imminent, and after grounding	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
8.3 Refloating a grounded ship *Course*	Respond to navigational emergencies	Refloating a grounded ship with and without assistance	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
8.4 Actions before and after a collision *Course*	Respond to navigational emergencies	Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
8.5.A Damage control	Respond to navigational emergencies	Assessment of damage control	On a vessel of at least 200 GRT or 500 GT at sea, on a simulator, or in a laboratory, during a drill simulation of a vessel casualty resulting in structural damage,	the candidate correctly identifies the type and scale of the presented vessel casualty damage and promptly identifies and takes proper action to safely minimize the effects of the damage.	The candidate's actions ensure that: 1. Communications are effective and comply with established procedures; and 2. Decisions and actions maximize safety of persons.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
8.6.A Emergency steering	Respond to navigational emergencies	Emergency steering	On a vessel of at least 200 GRT or 500 GT at sea, or on a simulator, during a simulation of the vessel suffering a steering casualty that cannot be corrected by switching steering motors,	the candidate gives the proper commands to operate the emergency steering system.	The commands given by the candidate include: 1. Having crew man the aft steering room; 2. Establishing communications with the steering engine room; 3. Switching steering control from the bridge to the steering engine room; and 4. Appropriate helm orders to be followed and courses to be steered.
8.7.A Emergency towing	Respond to navigational emergencies	Emergency towing arrangements and towing procedure	On a vessel, on a simulator, or in a laboratory, when asked to describe emergency towing arrangements and towing procedures,	the candidate describes the proper decisions to be made and steps to be taken to prepare the vessel for emergency towing.	The commands described by the candidate include: 1. Preparing to receive a towing line; or 2. Deploying the emergency towing gear; or 3. Ordering that the anchor and chain be lowered to the water (or into the water as directed by the towing vessel) and: a. Ensuring the chain will not pay out until the towing vessel requests additional chain; and b. Lowering a messenger to the water line in case it is needed.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.1.A Embark or disembark a pilot	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including maneuvers when approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, head reach and stopping distances	On a vessel of at least 1,600 GRT or 3,000 GT, or on a simulator using the model of a ship of 10,000 GRT or more, when approaching a pilot station, with other vessels maneuvering to and from the station,	the candidate maneuvers the vessel for embarkation or disembarkation of a pilot.	The candidate: 1. Notifies the engine room of the time at which the vessel will begin maneuvering; 2. Determines direction and force of wind and sea; 3. Determines which side the pilot boat will use; 4. Determines the heading needed to make a lee; 5. Approaches the pilot station after determining how the presence of other traffic maneuvering to or from the pilot station affects the vessel's safe approach; 6. Maneuvers and slows the vessel to make a lee and allow the pilot boat to safely maintain a position at the pilot ladder; and 7. Ensures that the pilot is aboard, and the pilot boat is away before resuming normal maneuvering.
9.2.A Counter set and drift	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all representative conditions, including handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response	On a vessel of at least 1,600 GRT or 3,000 GT, or on a simulator using the model of a ship of 10,000 GRT or more, in an exercise of at least 30 minutes, while transiting restricted waters,	the candidate pilots the vessel.	The candidate: 1. Determines the intended track of the vessel; 2. Determines the force and direction of the wind and current; 3. Sets courses to counter the effect of wind and current to maintain the ship on the intended track; and 4. Uses the proper speed and rudder orders to maintain the ship on the intended track (in the deepest water) during turns around points and bends in the river.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.3.A Constant radius turn	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including application of constant-rate-of-turn techniques	On a vessel of at least 1,600 GRT or 3,000 GT, or a simulator using the model of a ship of 10,000 GRT or more, in an exercise with a turn of at least 50°,	the candidate completes the turn while maintaining a constant radius of turn throughout the maneuver.	The candidate: 1. Determines the radius of the turn; and 2. Applies the correct amount of rudder to maintain the constant radius of turn with no more than two adjustments of less than 5.0° each.
9.4.A Maneuver in shallow water	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including maneuvering in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching	On a vessel of at least 1,600 GRT or 3,000 GT, or a simulator using the model of a ship of 10,000 GRT or more,	the candidate sets the speed to prevent the vessel from touching bottom.	The candidate: 1. Determines the under keel clearance; 2. Determines the maximum speed allowable to keep the vessel from squatting and touching bottom; and 3. Sets the speed of the vessel to keep the vessel on an even trim while on straight courses and during turns.
9.5.A Canal effect	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in representative conditions, including interaction between passing ships and between own ship and nearby banks (canal effect)	On a vessel of at least 1,600 GRT or 3,000 GT, or on a simulator using the model of a ship of at least 10,000 GRT, while conning a deep draft vessel in a narrow channel, and meeting a vessel on the opposite course,	the candidate passes the other vessel close aboard.	The candidate: 1. Orders the rudder hard left before the bow waves of each vessel intersect; 2. Shifts the rudder after the bows pass; and 3. When the sterns clear, shifts the rudder and then steadies on the original course.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.6.A Dock starboard side to	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including berthing and unberthing under various conditions of wind, tide and current with and without tugs Use of propulsion and maneuvering systems	On a vessel of at least 1,600 GRT or 3,000 GT, or on a simulator using the model of a ship of 10,000 GRT or more, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3.0 knots, on a single-screw vessel with a right-hand propeller,	the candidate demonstrates docking a vessel starboard side to a pier without tug assistance or the use of dynamic positioning.	The candidate demonstrates docking a vessel starboard side to a pier under the supervision of the Master. Actions taken include: 1. Planning: The candidate determines the: a. Depth of water at the berth for the state of the tide; b. Strength and direction of the current for the route to the berth and at berth; c. Direction and speed of the wind; and d. Appropriate courses and maneuvers for the approach to the berth. 2. Approaching: The candidate approaches the dock at the angle required by the wind and current, and at a speed that allows the vessel to maintain its heading and allows it to be stopped before allision. 3. Docking: The candidate: a. Uses the engines and mooring lines, as necessary, to stop the vessel or move it into final position; b. Properly runs out the mooring lines; and c. Takes in all slack lines until the vessel lies secure alongside.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.6.B Dock port side to	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including berthing and unberthing under various conditions of wind, tide and current with and without tugs Use of propulsion and maneuvering systems	On a vessel of at least 1,600 GRT or 3,000 GT, or a simulator using the model of a ship of 10,000 GRT or more, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3.0 knots, on a single-screw vessel with a right-hand propeller,	the candidate demonstrates docking a vessel port side to a pier without tug assistance or the use of dynamic positioning.	The candidate demonstrates docking a vessel port side to a pier under the supervision of the Master. Actions taken include: 1. Planning: The candidate determines: a. Depth of water at the berth for the state of the tide; b. Strength and direction of the current for the route to the berth and at berth; c. Direction and speed of the wind; and d. Appropriate courses and maneuvers for the approach to the berth. 2. Approaching: The candidate approaches the dock at the angle required by the wind and current, and at a speed that allows the vessel to maintain its heading and allows it to be stopped before allusion. 3. Docking: The candidate: a. Uses the engines and mooring lines, as necessary, to stop the vessel or move it into final position. b. Properly runs out the mooring lines; and c. Takes in all slack lines until the vessel lies secure alongside.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.7.A Turn ship short around	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including ship and tug interaction Use of propulsion and maneuvering systems	On a vessel of at least 1,600 GRT or 3,000 GT, or a simulator using the model of a ship of 10,000 GRT or more, and using a tug forward and a tug aft,	the candidate turns the vessel short around.	The candidate completes a 180° turn in two lengths of the ship.
9.8.A Anchor a ship	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used	On a **vessel** of at least 1,600 GRT or 3,000 GRT, or on a simulator using the model of a **vessel** of 10,000 GRT or more, in clear visibility, with a wind speed of less than 15 knots and a current of less than 3.0 knots,	the candidate demonstrates anchoring the vessel.	The candidate anchors the vessel as follows: 1. Planning: a. Depth of water; b. Type of bottom; c. Wind and current; d. Bottom obstructions; e. Room to swing; f. Place to anchor; g. Courses and maneuvers to the anchor site; h. Desired final heading, i. Expected weather for the time at anchor; and j. Whether tug assistance will be required 2. Approach: The candidate: a. Does not pass to windward or up-current of any anchored vessel or hazard to navigation; and b. Determines that the vessel has enough way to pass safely any such ships or hazards; *Continued on next page*

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9.8.A *Cont'd* Anchor a ship					*Continued from previous page* 3. Placement: The candidate: a. Approaches anchor site at a safe speed; b. Checks the vessel's position using multiple sources; c. Ensures that the vessel's engines are used appropriately to stop the vessel off the ground and then gain minimum sternway; d. Drops the anchor as the vessel begins to gain sternway; and e. Slowly pays out a length of chain 5-7 times the water depth 4. Fetching up: The candidate allows the vessel to fetch up on the chain, within the desired area and at the appropriate distance from other vessels.
9.9.A Dragging anchor	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including dragging anchor; clearing fouled anchors	On a **vessel** of at least 1,600 GRT or 3,000 GT, or on a simulator using the model of a ship of 10,000 GRT or more, with the vessel at anchor,	the candidate takes all precautions to determine if the vessel is dragging anchor.	The candidate takes the following steps: 1. Setting the GPS anchor watch function; 2. Setting the VRM and EBL of the ARPA or radar on prominent fixed objects; 3. Taking frequent visual bearings on fixed objects approximately 90° apart; and 4. Constructing a swing circle on a chart.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
9.9.B Clearing fouled anchor	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including dragging anchor; clearing fouled anchors	On a vessel or in a laboratory, when asked how to clear a fouled anchor,	the candidate describes vessel procedures and maneuvers to clear a fouled anchor.	The candidate describes the procedures for the clearing a fouled anchor, including: 1. Informing the engine room; 2. Clearing anchor fouled on an obstruction; 3. Clearing heavily buried anchor; 4. Clearing anchor winch malfunction; and 5. Heavy strain on the anchor.
9.10 Drydocking *Course*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including dry-docking, both with and without damage	This KUP is demonstrated by successful completion of the approved Advanced Stability course specified in 46 CFR 11.305(a)(3)(ii) and 11.307(a)(3)(ii).		
9.11 Emergency ship handling *Course*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including: management and handling of ships in heavy weather means of keeping an unmanageable ship out of trough of the sea use of oil assisting a ship or aircraft in distress towing operations	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		

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9.12 Maneuver to launch rescue boats *Course*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including precautions in maneuvering to launch rescue boats or survival craft in bad weather	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
9.13 Taking on survivors from rescue craft *Course*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including methods of taking on board survivors from rescue boats and survival craft	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
9.14 Maneuvering and propulsion characteristics *Course Note 1*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including ability to determine the maneuvering and propulsion characteristics of common types of ships, with special reference to stopping distances and turning circles at various draughts and speeds	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		

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9.15 Reducing wake damage *Course Note 1*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave	This KUP is demonstrated by successful completion of the approved Advanced Shiphandling course specified in 46 CFR 11.305(a)(3)(i) and 11.307(a)(3)(i).		
9.16.A Ice navigation *Note 1*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including practical measures to be taken when navigating in or near ice	On a vessel, on a simulator or in a laboratory, when asked to describe the practical measures to be taken when navigating in or near ice,	the candidate describes appropriate ice navigation procedures.	The candidate's description includes: 1. Where to obtain information about ice on or in the vicinity of the intended track; 2. Precautions to follow when navigating near ice; and 3. Precautions when navigating in thick ice.
9.16.B Ice accumulation *Note 1*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including practical measures to be taken when in conditions of ice accumulation on board	On a vessel, on a simulator, or in a laboratory, when asked to describe the practical measures to be taken when in conditions of ice accumulation on board,	the candidate describes appropriate procedures.	The candidate's description includes: 1. Master's obligation to report conditions that are causing severe ice accumulations; 2. Danger of reduced stability; 3. Other dangers of ice accumulation; 4. Damage to exposed surfaces and equipment conditions that cause ice accumulation to the vessel's topside, superstructure, and rigging; 5. Precautions to limit, reduce, and remove the accumulation.

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9.17.A Maneuver in traffic separation schemes *Note 1*	Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including use of, and maneuvering in and near, traffic separation schemes and in vessel traffic service (VTS) areas	On a vessel, on a simulator, or in a navigation laboratory, when asked to describe the use of, and maneuvering in and near, traffic separation schemes and in vessel traffic service (VTS) areas,	the candidate describes procedures for operating in VTS areas.	The candidate's description includes: 1. Expected behavior of vessels entering, transiting, and exiting a traffic separation scheme by quoting Rule 10 of the current COLREGS; 2. Relevance of the remaining Rules of the Road when transiting a traffic separation scheme; and 3. Reporting requirements of a Vessel Traffic System (VTS) including: a. Information required to be initially reported; b. Location and/or times where the reports must be made; and c. Information that must be reported when exiting the VTS.
10.1.A Diesel engines *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	On a vessel or in a laboratory, when asked to describe the operating principles of diesel engines,	the candidate describes diesel engine operation.	The candidate's description includes the general properties of diesel engines, in generally accepted engineering terms, including: 1. General diesel engines operating properties; 2. Two and four-stroke diesel cycles; 3. Slow-speed diesel engines; and 4. Medium-speed diesels.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.1.B Steam turbine systems	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	On a vessel or in a laboratory, when asked to describe the operating principles of steam turbine systems,	the candidate describes the operation of steam turbine systems.	The candidate's description includes the general properties of steam engines, in generally accepted engineering terms, including: 1. The turbine, including: a. Preparing to get underway; and b. Maneuvering; 2. The boiler, including: a. Raising steam; b. Fuel-oil supply system; c. Boiler-water testing; and d. Carry-over, both its cause and possible damaging effects; 3. Reduction gearing; and 4. Feed-water systems.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.1.C Propeller and propeller shaft *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	On a vessel or in a laboratory, when asked to describe the operating principles of propellers and propeller shafts,	the candidate describes operating principles of propellers and propeller shafts.	The candidate's description includes: 1. Propellers and propeller shafts: a. Types of propellers, including variable pitch; b. Parts of a propeller; c. Attachment to propeller shaft; d. Pitch; e. Slip; f. Efficiency; and g. RPM vs. ship's speed; h. Operational precautions for variable pitch propellers; 2. Calculating slip and ship's speed given RPM, slip, and pitch; and 3. Propeller shaft, including: a. Transmission of propeller thrust to hull; b. Transmission of rotational energy to propeller; and c. Stern tube bearing.

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10.1.D Bridge control *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	On a vessel or in a laboratory, when asked to describe the operating principles of bridge control,	the candidate describes operating principles of bridge control.	The candidate's description includes the properties of bridge control, in generally accepted engineering terms: 1. Control of the main engine from: a. The bridge; b. Machinery space: c. Local control; and d. Change-over of control station procedures; 2. Control of variable-pitch propellers; 3. Control-system indicators and alarms: a. In the engine-room; b. On the bridge; and c. Locally; and 4. Bow and stern thrusters: a. Operations; b. Indicators and alarms; c. Bridge control; and d. Local control.
10.2.A Waste heat boilers	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of waste heat boilers,	the candidate describes operating principles of waste heat boilers.	The candidate's description includes: 1. Their uses; 2. Concerns about their use; 3. Limitations; 4. Exhaust-heat heat exchangers; and 5. Steam-to-steam generators.

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10.2.B Distillation and fresh water systems	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of distillation and freshwater systems,	the candidate describes operating principles of distillation and freshwater systems.	The candidate's description includes: 1. Systems requiring distilled or freshwater; 2. Equipment used to distill water, including: a. Flash evaporators; and b. Reverse osmosis; 3. Treatment of freshwater for drinking; and 4. Vessel's domestic-water system.
10.2.C Pumps and pumping systems *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of pumps and pumping systems,	the candidate describes operating principles of pumps and pumping systems.	The candidate's description includes different pumps and their applications and characteristics: 1. Positive-displacement pumps, including: a. Reciprocating pumps; b. Rotary positive-displacement pumps; and c. Screw pumps; 2. Axial flow pumps; 3. Centrifugal pumps; and 4. Head, including: a. Defining head; b. Defining suction head and its significance; c. Defining discharge head and its significance; and d. Head losses and their significance; 5. Bilge and ballast systems; and 6. Cross connections such as the engine room emergency bilge system and the main circulating pump.

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10.2.D Steering gear *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of steering gear,	the candidate describes operating principles of steering gear.	The candidate's description includes: 1. The general design and operation of different systems, including: a. Variable delivery hydraulic pumps; b. Hydraulic ram-type steering gear; c. Rotary-vane type steering gear; 2. Control systems including: a. Auxiliary steering; b. Power supplies; and c. Emergency control; 3. Testing steering gear.
10.2.E Remotely operate steering gear	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel of at least 1,600 GRT or 3,000 GT while at sea,	the candidate demonstrates the ability to remotely operate steering gear.	The demonstration includes remote start-up and shut-down procedures, switching over, response to alarms, and adherence to manufacturer's operating manual.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.F Generators, alternators, and electrical distribution *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of generators, alternators, and electrical distribution,	the candidate describes operating principles of generators, alternators, and electrical distribution.	The candidate's description includes: 1. Direct-current (D.C.) and Alternating current (A.C.) systems, including: a. Advantages and disadvantages; b. Operation of generators; c. Purpose and use of inverters and rectifiers; d. Functioning of motors; and e. Distribution systems; 2. Safety precautions, including: a. Circuit breakers and fuses; and b. Lockout/tag-out procedures; 3. Batteries, including: a. Characteristics of lead-acid and alkaline batteries; b. Safety precautions; and c. Battery maintenance; 4. Emergency generators and lighting systems; and 5. Reading a navigational-light circuit.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.G Air conditioning and ventilation *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of air conditioning and ventilation,	the candidate describes operating principles of air conditioning and ventilation.	The candidate's description includes: 1. Operating principles of refrigeration systems; and 2. Operation of ventilation systems, including: a. Accommodation ventilation; b. Cargo-hold ventilation; and c. Shipboard air-conditioning systems.
10.2.H Sewage treatment plants *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of sewage treatment plants,	the candidate describes operating principles of sewage treatment plants.	The candidate's description includes: 1. U. S. regulations and International Conventions; and 2. Operation of chemical-and biological sewage treatment plants.
10.2.I Oily water separators and oil filtering equipment *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of oily-water separators and oil filtering equipment,	the candidate describes operating principles of oily-water separators and oil filtering equipment.	The candidate's description includes: 1. U. S. regulations and International Conventions; and 2. Construction, operation, and limitations of: a. Oily-water separators; b. Oil filtering equipment; c. Metering equipment; and d. Monitoring and control.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
10.2.J Deck machinery *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of deck machinery,	the candidate describes operating principles of deck machinery.	The candidate's description includes: 1. Anchor windlasses, including: a. Gearing; b. Redundant arrangements; and c. Vertical capstans; 2. Mooring winches, including: a. Spooling devices; b. Self tensioning; and c. Advantages and disadvantages of different drive systems; 3. Cargo winches, including slewing deck cranes; and 4. Lubrication of deck machinery.
10.2.K Hydraulic systems *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	On a vessel or in a laboratory, when asked to describe the operating principles of hydraulic systems,	the candidate describes operating principles of hydraulic systems.	The candidate's description includes: 1. The parts of a hydraulic system; 2. Hydraulic fluid heating and cooling; 3. Cleanliness of the hydraulic fluid; and 4. Effects of air in the hydraulic system.

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10.3.A Engineering terms *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	General knowledge of marine engineering terms	On a vessel or in a laboratory, when asked to define engineering terms,	the candidate defines the specified terms.	The candidate correctly defines: 1. *Mass*; 2. *Force*; 3. *Work*; 4. *Power*; 5. *Energy*; 6. *Pressure*; 7. *Stress*; 8. *Strain*; 9. *Heat*; 10. *Efficiency of a machine*; 11. *Indicated power*; 12. *Shaft power*; 13. *Thrust*; and 14. *Admiralty coefficient*.
10.3.B Fuel consumption *Note 1*	Operate remote controls of propulsion plant and engineering systems and services	General knowledge of marine engineering terms	On a vessel or in a laboratory, when asked to describe factors affecting fuel consumption,	the candidate describes factors affecting fuel consumption.	The candidate's description includes defining fuel consumption as a function of: 1. Displacement; 2. Distance; 3. Speed; 4. Sea state; 5. Hull condition; 6. Propeller condition; 7. Calculating daily consumption at service speed; 8. Fuel required for a voyage; and 9. Speed for a specific consumption on a daily and voyage consumption basis.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.1.A International regulations for cargo operations	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes	On a vessel or in a laboratory, when asked to describe international regulations, codes and standards for the safe handling, stowage, securing and transport of cargoes,	the candidate describes international regulations, codes and standards applicable to vessels of 1,600 GRT or 3,000 GT or more.	The candidate's description identifies key international and national conventions, codes, and legislation and includes the general obligations of the vessel owner, operator, and Master, regarding the carriage of goods by sea:
11.1.B Prepare a loading and discharge plan	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes	On a vessel or in a laboratory, when given information concerning a future cargo operation and given ship stability data for a vessel of at least 1,600 GRT or 3,000 GT and/or use of vessel-specific software,	the candidate prepares a loading/discharge plan.	The candidate's plan includes: 1. Stability and trim calculations; 2. Bending moment and stress calculations; 3. Application of appropriate procedures, rules and regulations regarding the loading and stowage of incompatible cargoes; 4. Application of appropriate procedures, rules and regulations regarding the stowage locations of easily damaged and/or contaminated cargoes; 5. Rigging of appropriate cargo equipment for the loading and/or discharge of cargo; 6. Securing of the loaded cargo; 7. Listing of safety procedures to be followed during the cargo operation; 8. Collecting and collating the appropriate cargo paperwork; and 9. A schedule of events for the cargo operation.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.2 Effect of cargo on trim and stability *Course*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of the effect on trim and stability of cargoes and cargo operations	This KUP is demonstrated by successful completion of the approved Advanced Stability course specified in 46 CFR 11.305(a)(3)(ii) and 11.307(a)(3)(ii).		
11.3 Stability calculations *Course*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Use of stability and trim diagrams and stress calculating equipment, including automatic database (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits	This KUP is demonstrated by successful completion of the approved Advanced Stability course specified in 46 CFR 11.305(a)(3)(ii) and 11.307(a)(3)(ii).		
11.4.A	*Assessment No. 11.4.A is intentionally omitted*				
11.4.B Container stowage and securing	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	On board a vessel or in a laboratory, when asked to describe the proper vessel stowage and securing of containers,	the candidate describes proper stowage and securing of containers.	The candidate's description includes: 1. General stowage procedures and instructions; 2. General lashing and securing procedures and instructions; 3. Lashing and securing safety; and 4. The consequences from the misuse of securing devices.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.4.C Stowage and securing of heavy lift cargoes	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	On board a vessel, or in a laboratory, when asked to describe the proper stowage and securing of heavy lift cargoes,	the candidate describes the proper stowage and securing.	The candidate's description includes: 1. Use of dunnage, shoring, and special supports for awkward shaped loads; 2. Ship's stability considerations; and 3. Pre and post-lift inspections.
11.4.D Stowage and securing of cargoes on Ro-Ro ships	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Stowage and securing of cargoes on board ships, including cargo handling gear and securing and lashing equipment	On board a vessel or in a laboratory, when asked to describe the proper stowage and securing of cargoes on Ro-Ro vessels,	the candidate describes proper stowage and securing of cargoes.	The candidate's description includes: 1. Loading and unloading of Ro-Ro vessels; 2. Securing of cargo; 3. Operation and inspection of watertight doors and hatches.
11.5.A Receipt, tallying, and delivery of cargo	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On board a vessel or in a laboratory, when asked to describe the receipt, tallying, and delivery of cargo,	the candidate describes receipt, tallying, and delivery of cargo.	The candidate's description includes: 1. Responsibility of the Master for the cargo; 2. Tallying; 3. Mate's receipts; 4. Damaged goods; 5. Damage to ship during loading and unloading; 6. Letter of Indemnity; and 7. Note of Protest.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.B Care of cargo during carriage	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On board a vessel or in a laboratory, when asked to describe the care of cargo during carriage,	the candidate describes care of cargo during carriage.	The candidate's description includes how to prevent damage to and contamination of cargo.
11.5.C Safe use of cargo handling gear	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On board a vessel or in a laboratory, when asked to describe the safe use of cargo handling gear,	the candidate describes safe use of cargo handling gear.	The candidate's description includes: 1. Applicable national laws and regulations, and other requirements; 2. Procedures for protecting personnel from accidents; 3. Locating elements of the vessel's rigging plan; and 4. Hazards of fumigation.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.5.D Develop a loading plan	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On board a vessel of at least 1,600 GRT or 3,000 GT, or in a laboratory, when given a list of cargo to be loaded and discharged, the stability and trim booklet or vessel specific software and any other onboard reference materials,	the candidate develops a loading plan for a hold or holds.	The candidate's plan takes into account the following: 1. Carriage requirements of each cargo loaded; 2. Potential damage that may occur to each cargo that is loaded or unloaded and how to prevent that damage; 3. Precautions to prevent and/or contain leakage of liquid cargo; 4. Precautions to prevent pilferage and/or contamination of cargo; and 5. Minimizing the risk of injury or death to: a. Vessel personnel; b. Longshoremen; c. Visitors; and d. Other personnel expected to attend the transfer.
11.5.E Inspect cargo running gear *Note 1*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	On a vessel or in a laboratory, when given a sampling of loose gear, line, and wire rope,	the candidate examines the gear specified by the assessor and reports the results to the assessor.	The candidate examines the gear and reports on the use, safe working load, condition and maintenance of the gear selected by the assessor. The assessment should include the following: 1. Wire ropes; 2. Fiber lines; 3. Cargo blocks; 4. Shackles; and 5. Chain.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.6.A Basic concepts of tanker operations *Note 1*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	On board a vessel or in a laboratory, when asked to describe basic concepts of tanker operations,	the candidate describes, in general terms, basic tanker operations.	The candidate's describes general terms and concepts such as: 1. *Reid Vapor Pressure* (RVP); 2. *flashpoint*; 3. *flammable*; 4. *upper flammable limit*; 5. *lower flammable limit*; and 6. *auto-ignition temperature*.
11.6.B ISGOTT contents and application *Note 1*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	On a vessel or in a laboratory, when asked to describe the contents and application of the International Safety Guide for Oil Tankers and Terminals (ISGOTT),	the candidate describes the purpose, contents, and use of ISGOTT.	The description includes, in general terms, the purpose, use, and content of ISGOTT.
11.6.C Oil and chemical tanker operations *Note 1*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	On a vessel or in a laboratory, when asked to describe basic oil and chemical tanker operations,	the candidate describes, in general terms, tanker operations.	The candidate describes: 1. Ballasting; 2. Inert gas systems; 3. Tank cleaning; 4. Discharge of oil and chemical cargo; 5. Gas freeing.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.6.D Basic concepts of liquefied gas tanker operations *Note 1*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	On a vessel or in a laboratory, when asked to describe basic gas tanker operations,	the candidate describes, in general terms, basic liquefied gas tanker operations.	The candidate: 1. Defines: a. *Liquefied gas*; b. *Boiling point*; c. *Integral tank*; and d. *Membrane tank*; and 2. Describes the following cargo operations: a. Inerting; b. Purging; c. Loading; d. Discharging; and e. Gas freeing.
11.7.A Basic concepts of bulk carriers *Note 1*	Knowledge of operational and design limitations of bulk carriers Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes	On a vessel or in a laboratory, when asked to describe the loading, care and unloading of bulk cargoes,	the candidate describes, in general terms, loading, care and unloading of bulk cargoes.	The candidate's description includes: 1. Trimming cargo; 2. Explosiveness of grain dust; 3. Ventilation to prevent spoilage; 4. Proper preparation of holds; 5. Hull stresses and vessel stability; 6. Damage to ships structure; 7. Avoiding overloading of the vessel; and 8. Leakage of water into the hold.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.8.A Develop a garbage plan	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information	On a vessel or in a laboratory,	the candidate develops a garbage plan for the vessel.	The candidate's plan includes: 1. Identification of garbage types and segregation by type; and 2. Detailed instructions for: a. Collection of garbage; b. Discharge of garbage; c. Accidental discharge of garbage; d. Recording of the collection and discharge of garbage; and e. Reporting garbage collection and/or discharge.
11.8.B Loading of packaged dangerous goods	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to establish procedures for safe cargo handling with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information	On board a vessel or in a laboratory, when asked to identify the procedures for safe cargo handling in accordance with the provisions of the relevant regulations, conventions and good practice,	the candidate describes the general concepts of the loading of packaged dangerous goods.	The candidate's description includes: 1. Defining the following from the IMDG Code: a. *Dangerous goods*; and b. *Packaged form*; 2. Reporting of incidents involving dangerous goods; and 3. Locating and describing the stowage requirements for three items specified by the assessor from Chapter 7.1 of the IMDG Code.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
11.9.A Conduct cargo transfer meeting *Note 1*	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel	On board a vessel or in a laboratory,	the candidate conducts a cargo transfer meeting with terminal personnel, under the supervision of the Chief Mate or Master and demonstrates effective communications.	The candidate: 1. Uses standard phrases; 2. Asks questions and repeating the answers in the candidate's terms; 3. Answers questions and confirming that the answer was properly understood; 4. Assigns personnel as needed for inspections and other pre-cargo transfer procedures; 5. Politely objects to procedures requested from terminal personnel that would be counter to the proper discharge of the vessel or applicable rules and regulations; and 6. Acts in a manner that is not culturally offensive to the terminal personnel.
12.1.A *Note 1*	Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action	Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling	This KUP is demonstrated by successful completion of assessment 11.7.A, above.		

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
13.1.A Carriage of dangerous goods *Note 1*	Carriage of dangerous goods	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the International Maritime Solid Bulk Cargoes (IMSBC) Code	On a vessel or in a laboratory, when asked to describe the proper stowage and carriage of dangerous cargoes,	the candidate describes the proper stowage and carriage of dangerous goods.	The candidate's description includes: 1. Basic concepts for the stowage and carriage of dangerous goods; and 2. Reporting of incidents involving dangerous goods.
14.1 Ship construction and stability *Course*	Control trim, stability and stress		This KUP is demonstrated by successful completion of the approved Advanced Stability course specified in 46 CFR 11.305(a)(3)(ii) and 11.307(a)(3)(ii).		
14.2 Effect of flooding *Course*	Control trim, stability and stress	Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken	This KUP is demonstrated by successful completion of the approved Advanced Stability course specified in 46 CFR 11.305(a)(3)(ii) and 11.307(a)(3)(ii).		

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
14.3 IMO ship stability recommendations *Course Note 1*	Control trim, stability and stress	Knowledge of IMO recommendations concerning ship stability	This KUP is demonstrated by successful completion of the approved Advanced Stability course specified in 46 CFR 11.305(a)(3)(ii) and 11.307(a)(3)(ii).		
15.1.A Certificates required by international conventions *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	On a vessel or in a laboratory, when asked to identify the certificates required to be carried on board s by international conventions,	the candidate identifies and describes the certificates that must be carried.	The candidate's description includes the following: 1. Certificate of Nationality (Ship's Registry); 2. International Tonnage Certificate; 3. Panama and/or Suez Canal Tonnage Certificates; 4. International Load Line Certificate; 5. International Oil Pollution Prevention Certificate; 6. International Sewage Pollution Prevention; 7. License(s) for the ship radio station; 8. INMARSAT access authorization certificate; and 9. All other certificates required for the vessel based on its trade and operations..

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.1.B Documents required to be carried *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	On a vessel or in a laboratory, when asked to identify the documents required to be carried on board vessels,	the candidate identifies documents that must be carried.	The candidate identifies: 1. Classification Society Certificates for Hull and Machinery, Refrigerating Machinery and Cargo Handling Appliances; 2. Anchor and Chain Cable Certificate; 3. Inflatable Liferaft Inspection Certificates; 4. Stability, Loading, and Ballasting Information; 5. Damage Control Plan and Booklets; 6. Oil Record Book; 7. Official Log Book; Deck, Engine-room and Radio Logbooks; 8. Articles of Agreement with the Crew; 9. Certificates for Competency of Officers and Ratings; 10. Minimum Safe Manning Document; 11. Safety Management Certificate; and 12. Copy of the owner's or manager's Document of Compliance.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.1.C Documents required at arrival and departure *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	On a vessel or in a laboratory, when asked to identify the documents required at arrival or departure,	the candidate identifies the documents required.	The description includes the obligation to carry the following documents required at arrival or departure: 1. General declaration; 2. Cargo declaration; 3. Dangerous goods manifest or plan; 4. Ship's stores declaration; 5. Crew list; 6. Passenger list; 7. Ship Sanitation Control Exemption Certificate or Ship Sanitation Control Certificate; and 8. Maritime Declaration of Health.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.2.A International Convention on Load Lines *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention on Load Lines, 1966, as amended	On a vessel or in a laboratory, when to describe the International Convention on Load Lines, 1966, as amended,	the candidate describes important provisions of the Convention.	The candidate's description includes: 1. Safety function of load lines: 2. Requirements for a valid International Load Line Certificate; 3. Defining the load line marks that may be marked on each side of the vessel; and 4. Relationship of a vessel's draft to its operations under the International Convention of Load Lines in the following operational situations: a. Required compliance for the zones and areas the vessel is or will be sailing in; b. Applicable load line must never be submerged when the vessel is at sea; c. Determination of the applicable load line when a vessel departs from a port on the boundary between two zones or areas; d. Determination of the applicable load line when a vessel arrives at a port on the boundary between two zones or areas; e. Calculation of fresh water allowance to determine how far the applicable load line may be submerged; and f. Calculation of allowance for fuel and stores from sailing to departure to determine how far the load line may be submerged.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.3.A International Convention for the Safety of Life at Sea *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Safety of Life at Sea, 1974, as amended	On a vessel or in a laboratory, when asked to describe the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended,	the candidate describes important provisions of SOLAS.	The candidate's describes the obligations of the Master under SOLAS, including: 1. Sending danger messages relating to ice, dangerous derelicts, dangers to navigation, tropical storms, ice accretion, unreported wind force 10 or above; 2. Sail at moderate speed when in the area of ice; 3. When receiving any signal that a vessel or aircraft is in distress; 4. The carriage of navigation equipment and publications; 5. Proper manning; 6. Testing of steering gear before sailing; 7. Placing a placard indicating the change-over of steering gear and use of remote steering; 8. Emergency steering gear drills; and 9. Logging of steering gear tests; 10. Circumstances when the normal obligation of a Master is waived when receiving a distress signal; 11. Rights of the Master to requisition a ship that has answered a call for assistance; 12. Information required in danger messages; and 13. Non-emergency use of international distress signals is prohibited.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.A MARPOL 73/78 *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	On a vessel or in a laboratory, when asked to describe the International Convention for the Prevention of Pollution from Ships, as amended,	the candidate describes important provisions of MARPOL.	The candidate's description includes: 1. The following points concerning the general construction of MARPOL 73/78 and its six annexes: a. Oil; b. Bulk noxious liquid substances; c. Packaged harmful substances; d. Sewage; e. Garbage; and f. Air pollution. 2. The obligation of the countries who are signatory to this Convention to apply to all vessels, even if the vessel is flagged in a country that is not a signatory. 3. The annexes that are mandatory when a country becomes a signatory to the convention; 4. The annexes that are only mandatory if the country chooses to become signatory to that particular annex; 5. The annexes that the United States is signatory to and what replaces any annexes the United States is not signatory to; and 6. Exceptions to each annex.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.B MARPOL Annex I *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, As amended	On a vessel or in a laboratory, when asked to describe International Convention for the Prevention of Pollution from Ships, Annex I,	the candidate describes important provisions of MARPOL Annex I.	The candidate's description includes important points of MARPOL 73/78 Annex I (Oil), including: 1. No changes should be made to the vessel, except for direct replacement of equipment without the approval of the flag state; 2. Master's duty to report an accident or defect that affects the integrity of the vessel; 3. International Oil Pollution Prevention (IOPP) certificate: a. Dates of intermediate and annual surveys; b. Record of construction and equipment; c. Duration of validity; and d. What will invalidate IOPP; 4. Oil record book; 5. Master must be provided information regarding cargo loading and distribution to ensure subdivision and stability criteria compliance; and 6. All ships over 400 GT and tankers over 150 GT must carry an approved shipboard oil pollution emergency plan (SOPEP), the seven parts of which detail the following: a. General information; b. Preamble; c. Reporting requirements; d. Information required; e. Required contacts; f. Steps to control discharge; and g. Non-mandatory provisions.

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Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.C MARPOL Annex II *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	On a vessel or in a laboratory, when asked to describe International Convention for the Prevention of Pollution from Ships, Annex II,	the candidate describes important provisions of MARPOL Annex II.	The candidate's description includes: 1. MARPOL 73/78 Annex II (Noxious Liquid Substances in Bulk); 2. The International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk; 3. Categorization of noxious liquid substances; 4. Procedures and Arrangements Manual; 5. Cargo Record Book; 6. Master must be provided information regarding cargo loading and distribution to ensure subdivision and stability criteria compliance; and 7. All ships over 150 GT must carry an approved shipboard oil pollution emergency plan (SOPEP).
15.4.D MARPOL Annex III *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	On a vessel or in a laboratory, when asked to describe International Convention for the Prevention of Pollution from Ships, Annex III,	the candidate describes important provisions of MARPOL Annex III.	The candidate's description includes the important points of MARPOL 73/78 Annex III (Packaged Harmful Substances).

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.E MARPOL Annex IV *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	On a vessel or in a laboratory, when asked to describe International Convention for the Prevention of Pollution from Ships, Annex IV,	the candidate describes important provisions of MARPOL Annex IV.	The candidate's description includes the following important points of MARPOL 73/78 Annex IV (Sewage): 1. U.S. is not signatory to this Annex, however the following U.S. laws, regulations, and policies apply: a. Federal Water Pollution Act; b. U.S. requirements found in 33 CFR 159; and c. Applicable U. S. Coast Guard policy.
15.4.F MARPOL Annex V *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	On a vessel or in a laboratory, when asked to describe International Convention for the Prevention of Pollution from Ships, Annex V,	the candidate describes important provisions of MARPOL Annex V.	The candidate's description includes the following points of MARPOL 73/78 Annex V (Garbage): 1. Applicable requirement when garbage is mixed with other discharges; 2. Provisions for the disposal of garbage, including: a. In special areas; and b. From and within 500 meters of offshore platforms; 3. Use of grinders and comminutors; 4. Special areas; 5. Record keeping; and 6. Port state control inspections.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.4.G MARPOL Annex VI *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	On a vessel or in a laboratory, when asked to describe International Convention for the Prevention of Pollution from Ships, Annex VI,	the candidate describes important provisions of MARPOL Annex VI.	The candidate's description includes the following points of MARPOL 73/78 Annex VI (Air Pollution): 1. No changes should be made to the vessel, except for direct replacement of equipment without the approval of the flag state; 2. Master's duty to report an accident or defect that affects the integrity of the vessel; and 3. International Air Pollution Prevention (IAPP) certificate, including: a. Dates of intermediate and annual surveys; b. Record of construction and equipment; c. Duration of validity; and d. What will invalidate an IAPP.
15.5.A International Health Regulations *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Maritime declarations of health and the requirements of the International Health Regulations	On a vessel or in a laboratory, when asked to describe the requirements of the International Health Regulations,	the candidate identifies and describes major provisions of relevant health regulations including the information and procedures that port health officials require to prevent the transmission of diseases.	The candidate's description includes: 1. Defining: a. *Maritime Declaration of Health*; b. *Diseases subject to the regulations*; c. *Disinfecting*; d. *Free pratique*; e. *Infected person*; f. *Quarantine*; g. *International voyage*; h. *Isolation*; i. *Medical examination;* and j. *Suspect;* *Continued on next page*

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.5.A *Cont'd* International Health Regulations *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Maritime declarations of health and the requirements of the International Health Regulations	On a vessel or in a laboratory, when asked to describe the requirements of the International Health Regulations,	the candidate identifies and describes major provisions of relevant health regulations including the information and procedures that port health officials require to prevent the transmission of diseases.	*Continued from previous page* 2. Master's obligation to inform port authorities of real or suspected illnesses; 3. Process of requesting "free pratique"; and 4. Health procedures involving: a. Transiting through a country's waters; and b. Denial of entry due to health reasons.
15.6.A International instruments affecting the safety of the ship, passengers, crew and cargo *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions international instruments affecting the safety of the ship, passengers, crew and cargo	On a vessel or in a laboratory, when asked to identify and describe international agreements and conventions,	the candidate identifies and describes major provisions of relevant international agreements and conventions.	The candidate's description includes underlying principles, content and application of the following: 1. International Convention for the Unification of Certain Rules of Law with Respect to Collision Between Vessels; 2. International Convention on Salvage; 3. International Convention for the Unification of Certain Rules of Law Relating to Bills of Loading (Hague Visby Rules); 4. The York-Antwerp Rules; 5. STCW Convention; and 6. ISM Code.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.6.B International instruments affecting the safety of the ship, passengers, crew and cargo *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions international instruments affecting the safety of the ship, passengers, crew and cargo	On a vessel or in a laboratory, when asked to identify and describe international instruments affecting the safety of the vessel, passengers, crew and cargo,	the candidate identifies and describes major provisions of relevant international instruments.	The candidate's identifies and describes the important provisions of the following: 1. Marine Note of Protest; 2. Lloyd's Standard Form of Salvage Agreement; 3. Charter parties; 4. Marine insurance; 5. General average; 6. Partial loss; 7. Total loss; 8. Constructive total loss; 9. Particular average; 10. Subrogation; and 11. P&I Associations.
15.7.A Pollution prevention *Note 1*	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions methods and aids to prevent pollution of the marine environment by ships	On a vessel or in a laboratory, when asked to identify and describe the provisions of relevant international environmental conventions,	the candidate describes the major provisions of relevant international environmental conventions.	The candidate's description includes the contents of the following relevant international environmental conventions: 1. Convention of the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention); 2. International Convention on Civil Liability for Oil Pollution Damage, 1969; 3. International Convention for the Control and Management of Ships' Ballast Water and Sediments; 4. International Convention on Oil Pollution Preparedness; 5. International Convention for the Safety of Life at Sea, 1974.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
15.8.A National legislation to implement international conventions	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions National legislation for implementing international agreements and conventions	On a vessel or in a laboratory, when asked to identify and describe national legislation for implementing international agreements and conventions,	the candidate identifies and describes major provisions of relevant U.S. national environmental laws.	The candidate may include the contents of the following relevant U.S. national environmental laws: 1. Oil Pollution Act of 1990; 2. Federal Water Pollution Control Act; 3. Clean Air Act; 4. Clean Vessel Act of 1992; 5. Abandoned Barge Act of 1992; 6. Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990; 7. Act to Prevent Pollution from Ships of 1980; 8. Oil Terminal and Oil Tanker Environmental Oversight and Monitoring Act of 1990; and 9. 33 CFR Subchapter O.
16.1.A Life-saving appliance regulations *Note 1*	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea)	On a vessel or in a laboratory, when asked to identify and describe lifesaving appliance regulations applicable to the vessel on which the assessment is performed,	the candidate identifies and describes requirements for specific equipment designated by the assessor.	The candidate correctly describes equipment requirements, including type and quantity that must be carried or frequency of the activity. The assessor should query the candidate on specific SOLAS requirements.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.2.A Plan fire or emergency drill	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Organization of fire drills and abandon ship drills	On board a vessel of at least 1,600 GRT or 3,000 GT or in a laboratory given a station bill and particulars for a vessel of at least 1,600 GRT or 3,000 GT,	the candidate plans a fire or emergency drill.	The candidate: 1. Determines: a. Drill to be conducted; b. Location of the simulated casualty; and c. The portion of the station bill that applies; 2. Examines the location of the simulated casualty to determine: a. Its suitability for the drill; b. Required manpower; c. Potential hazards; and d. Usability of the onboard emergency plans. 3. Uses the onboard emergency plan for the simulated casualty and space to be used and develops: a. A script to use during the drill; b. Contingency plans; and c. Initial corrections to that emergency plan based upon the examination of the location 4. Walks through the emergency plan and its contingencies; and 5. Consults with and obtains concurrence with the plan from the Chief Mate, Master and other senior officers that may be affected.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.3.A Develop a maintenance plan for lifesaving and firefighting equipment	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Maintenance of operational condition of life-saving, fire-fighting and other safety systems	On a vessel or in a laboratory,	the candidate develops a maintenance plan for the vessel's lifesaving and firefighting equipment.	The candidate's plan includes: 1. The following vessel's lifesaving and firefighting equipment: a. Survival craft: b. Portable firefighting equipment; c. Fixed firefighting equipment; d. Life rings; and e. Personal floatation devices; and 2. For each type of equipment, the plan describes: a. Safety procedures for inspecting and simulating operation; b. Number on board; c. Storage; d. Exercising of equipment; e. Required inspections of equipment; and f. Required maintenance.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.4.A Procedures to rescue persons from a ship in distress *Note 1*	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Actions to be taken to protect and safeguard all persons on board in emergencies	On a vessel or in a laboratory, when asked to describe the general procedures to rescue persons from a vessel in distress,	the candidate describes the general procedures to be taken to rescue persons from a vessel in distress.	The candidate's description includes: 1. Waiting for daylight when possible; 2. Establishing communications between vessels; 3. Replacing unneeded equipment in rescue boats with additional life jackets, lifebuoys, blankets, and portable radios; 4. Checking the area for debris and other hazards to the rescue boats; 5. Providing a lee and using oil to calm sea, if needed; 6. Rigging equipment to board survivors from boats or in the water; 7. Recovering the rescue boat; and 8. Alternatives that may be used if the seas are too rough to use rescue boats.
16.4.B Man overboard procedures *Note 1*	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Actions to be taken to protect and safeguard all persons on board in emergencies	On a vessel or in a laboratory, when asked to describe general procedures to be performed on board when a person falls overboard,	the candidate describes general man overboard procedures.	The candidate's description includes: 1. Sounding the man overboard signal; 2. Visual signals to be used to indicate that the vessel is recovering a person overboard; 3. Importance of man overboard drills; 4. Use of recovery equipment to rescue a person overboard; and 5. Actions to take when a person is reported missing at sea including, but not limited to: a. Search of the vessel; b. Use of the Williamson turn; c. Investigation of when the person was last seen; and d. Posting of lookouts.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
16.5.A Actions following fire, explosion, collision or grounding *Note 1*	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	On a vessel or in a laboratory, when asked to describe the actions to limit damage and save the vessel,	the candidate describes general procedures to limit damage and save the ship due to a fire, explosion, collision or grounding.	The candidate's description includes: 1. Inspection to determine the extent of damage; 2. Shoring weakened areas; 3. Plugging holes; 4. Electrical damage; 5. Piping damage; 6. Temporary repairs; and 7. Adjusting speed and course to minimize stresses and water entry.
16.5.B Abandon ship procedures *Note 1*	Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	On a vessel or in a laboratory, when asked by a Qualified Assessor to identify the general procedures to be used when abandoning the vessel,	the candidate describes the general procedures to be used when abandoning a vessel	The candidate's description includes: 1. Determining if the vessel is in imminent danger from: a. Sinking; b. Breaking up; c. Exploding; and d. Other conditions that make remaining on board impossible; 2. Distress messages and signals: a. To attract attention; b. By all means available; and c. The information to insert in the message; and 3. Launching of survival craft: a. When the ship is listing heavily; b. In heavy weather conditions; and c. The use of oil.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
17.1.A Plan fire and emergency drill	Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies	This KUP is demonstrated by successful completion of Task 16.2.A		
17.2.A Prepare a damage control plan	Develop emergency and damage control plans and handle emergency situations	Ship construction, including damage control	On a vessel of at least 1,600 GRT or 3,000 GT, or in a laboratory given particulars for a vessel of at least 1,600 GRT or 3,000 GT	the candidate prepares a damage control plan for the vessel.	The candidate's plan: 1. Describes the following: a. Margin line; b. Permeability of a space; and c. Subdivision; 2. Determines, for a starboard or portside compartment designated by the assessor: a. Stability if this compartment is flooded; b. Effect of asymmetrical flooding on the vessel; c. If the vessel can counter the asymmetrical flooding of the designated compartment; and d. Effect on the vessel's stability if the damage occurred in a Beaufort Scale 6 storm; and 3. Describes additional effects that may incur due to flooding, including: a. Insufficient reserve buoyancy; b. Progressive flooding; and c. Added stresses.

Successful completion of these Assessment Guidelines will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Guidelines is not mandatory and alternative means of having achieved the standards of competence in the STCW Code will be considered. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
17.3 Fire prevention *Course Note 1*	Develop emergency and damage control plans and handle emergency situations	Methods and aids for fire prevention, detection and extinction	This KUP is demonstrated if the candidate has maintained the standard of competence for Advanced Fire Fighting described in 46 CFR 11.303(b).		
17.4 Use of Lifesaving appliances *Course Note 1*	Develop emergency and damage control plans and handle emergency situations	Functions and use of lifesaving appliances	This KUP is demonstrated by completing an approved *Proficiency in Survival Craft* or *Proficiency in Survival Craft Limited* course or if the mariner holds a valid endorsement for PSC or PSC-Limited.		
18.1 Shipboard management International conventions and national leguislation *Course*	Use of leadership and managerial skill	Knowledge of shipboard personnel management and training A knowledge of related international maritime conventions and recommendations, and national legislation A knowledge of related national legislation	These KUPs are demonstrated by successful completion of the approved *Leadership and Managerial Skills* course specified in 46 CFR 11.305(a)(3)(iv) and 11.307(a)(3)(iv).		

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
18.2 Use of leadership and managerial skill *Course Note 1*	Use of leadership and managerial skill	Ability to apply task and workload management... Knowledge and ability to apply effective resource management allocation, assignment, and prioritization of resources... Knowledge and ability to apply effective resource management effective communication on board and ashore... Knowledge and ability to apply effective resource management... Knowledge and ability to apply decision-making techniques...	These KUPs are demonstrated by successful completion of the approved *Leadership and Managerial Skills* course specified in 46 CFR 11.305(a)(3)(iv) and 11.307(a)(3)(iv).		

Task No./Name	STCW Competence	STCW Knowledge, Understanding, and Proficiency	Performance Condition	Performance Behavior	Performance Standard
19.1 International Medical Guide for Ships *Course Note 1*	Organize and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications International Medical Guide for Ships or equivalent national publications	This KUP is demonstrated by successful completion of the *Management of Medical Care* course specified in 46 CFR 11.305(a)(3)(ix) and 11.307(a)(3)(ix).		
19.2 International Code of Signals – medical section *Course Note 1*	Organize and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications medical section of the International Code of Signals	This KUP is demonstrated by successful completion of the *Management of Medical Care* course specified in 46 CFR 11.305(a)(3)(ix) and 11.307(a)(3)(ix).		
19.3 Medical First Aid Guide *Course Note 1*	Organize and manage the provision of medical care on board	A thorough knowledge of the use and contents of the following publications Medical First Aid Guide for Use in Accidents Involving Dangerous Goods	This KUP is demonstrated by successful completion of the *Management of Medical Care* course specified in 46 CFR 11.305(a)(3)(ix) and 11.307(a)(3)(ix).		

Record of Assessment

for

MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

For: _____ _____ _____

Print Name of Candidate *Candidate's Signature* *Candidate's Mariner Reference No.*

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

NOTE TO QUALIFIED ASSESSOR(S): In performing your function as a qualified assessor, you may use your initials only to indicate you have personally witnessed the demonstration of skill or ability by the person being assessed. The Assessment Guidelines in Enclosure (2) will provide satisfactory evidence of meeting the standard of competence specified in Section A-II/2 of the STCW Code. The use of these Assessment Guidelines is not mandatory and an alternative means of having achieved the standards of competence in the STCW Code will be considered as described in paragraph 10 of this NVIC. In accordance with 46 CFR 11.301(a)(1)(i), alternative Assessment Guidelines must be approved by the National Maritime Center before use.

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks	1.1.A *Note 1*	Create a voyage plan		
		1.2.A *Notes 1,2*	Great circle sailing		
		1.2.B *Notes 1,2*	Mercator sailing - initial course and total distance		
		1.2.C *Notes 1,2*	Mercator sailing - final position		
	Position determination in all conditions by celestial observations	2.1.A *Notes 1,2*	Meridian transit (other than the sun)		
		2.1.B *Notes 1,2*	Star identification		
		2.1.C *Notes 1,2*	Star selection		
		2.2.A *Notes 1,2*	GPS routing		

Notes:

This Record of Assessment does not include all Knowledge, Understanding and Proficiency (KUP) specified in STCW Code Table A-II/1 and in Enclosure (2) of this NVIC. It does not include assessments of KUPs that are demonstrated by completion of required training. Mariners will evidence demonstrating those KUPs with the relevant course completion certificate.

Note 1 Assessment is *not* required if the mariner holds an STCW endorsement as Master or Chief Mate for 500 GT or More and Less Than 3,000 GT.

Note 2 Assessment is *not* required for an endorsement that will be limited to near coastal waters.

Print Name of Candidate _____ *Candidate's Mariner Reference No.* _____

RECORD OF ASSESSMENT
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STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses	3.1.A *Note 1*	Amplitude of body other than the sun		
		3.2.A *Note 1*	Write a standing order regarding compasses		
		3.3.A *Note 1*	Operation and care of gyrocompass		
Maintain safe navigation through use of information from navigation equipment and systems to assist command decision making	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems	5.2.A *Note 1*	Blind pilotage planning		
		5.3.A *Note 1*	Plan and execute a passage		
Forecast weather and oceanographic conditions	Ability to calculate tidal conditions	7.4.A *Note 1*	Calculate height of tide		
		7.4.B *Note 1*	Calculate tidal current		
		7.4.C *Note 1*	Calculate time for desired height of tide		
Respond to navigational emergencies	Assessment of damage control	8.5.A	Damage control		
	Emergency steering	8.6.A	Emergency steering		
	Emergency towing arrangements and towing procedure	8.7.A	Emergency towing		

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including maneuvers when approaching pilot stations and embarking or disembarking pilots	9.1.A	Embark or disembark a pilot		
	Maneuvering and handling a ship in all representative conditions, including handling ship in rivers, estuaries and restricted waters	9.2.A	Counter set and drift		
	Maneuvering and handling a ship in all conditions, including application of constant-rate-of-turn techniques	9.3.A	Constant radius turn		
	Maneuvering and handling a ship in all conditions, including maneuvering in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching	9.4.A	Maneuver in shallow water		
	Maneuvering and handling a ship in representative conditions, including interaction between passing ships and between own ship and nearby banks	9.5.A	Canal effect		
Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including berthing and unberthing under various conditions of wind, tide and current with and without tugs	9.6.A	Dock starboard side to		
		9.6.B	Dock port side to		

Print Name of Candidate *Candidate's Mariner Reference No.*

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Maneuver and handle a ship in all conditions	Maneuvering and handling a ship in all conditions, including ship and tug interaction	9.7.A	Turn ship short around		
	Maneuvering and handling a ship in all conditions, including choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used	9.8.A	Anchor a ship		
	Maneuvering and handling a ship in all conditions, including dragging anchor; clearing fouled anchors	9.9.A	Dragging anchor		
		9.9.B	Clearing fouled anchor		
	Maneuvering and handling a ship in all conditions, including practical measures to be taken when navigating in or near ice	9.16.A *Note 1*	Ice navigation		
	Maneuvering and handling a ship in all conditions, including practical measures to be taken when in conditions of ice accumulation on board	9.16.B *Note 1*	Ice accumulation		
	Maneuvering and handling a ship in all conditions, including use of, and maneuvering in and near, traffic separation schemes and in vessel traffic service (VTS) areas	9.17.A *Note 1*	Maneuvering in traffic separation schemes		

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STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants	10.1.A *Note 1*	Diesel engines		
		10.1.B *Note 1*	Steam turbine systems		
		10.1.C *Note 1*	Propeller and propeller shaft		
		10.1.D *Note 1*	Bridge control		
	Ships' auxiliary machinery	10.2.A	Waste heat boilers		
		10.2.B	Distillation and freshwater systems		
		10.2.C *Note 1*	Pumps and pumping systems		
		10.2.D *Note 1*	Steering gear		
		10.2.E	Remotely operate steering gear		
		10.2.F *Note 1*	Generators, alternators, and electrical distribution		
		10.2.G *Note 1*	Air conditioning and ventilation		
		10.2.H *Note 1*	Sewage treatment plants		
		10.2.I *Note 1*	Oily water separators and oil filtering equipment		

Print Name of Candidate *Candidate's Mariner Reference No.*

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Operate remote controls of propulsion plant and engineering systems and services	Ships' auxiliary machinery	10.2.J *Note 1*	Deck machinery		
		10.2.K *Note 1*	Hydraulic systems		
	General knowledge of marine engineering terms	10.3.A *Note 1*	Engineering terms		
		10.3.B *Note 1*	Fuel consumption		
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes	11.1.A	International regulations for cargo operations		
		11.1.B	Prepare a loading/discharge plan		
		11.4.B	Container stowage and securing		
		11.4.C	Stowage and securing of heavy lift cargoes		
		11.4.D	Stowage and securing of cargoes on Ro-Ro ships		
	Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing	11.5.A	Receipt, tallying, and delivery of cargo		
		11.5.B	Care of cargo during carriage		
		11.5.C	Safe use of cargo handling gear		
		11.5.D	Develop a loading plan		
		11.5.E *Note 1*	Inspect cargo running gear		

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	General knowledge of tankers and tanker operations	11.6.A *Note 1*	Basic concepts of tanker operations		
		11.6.B *Note 1*	ISGOTT contents and application		
		11.6.C *Note 1*	Oil and chemical tanker operations		
		11.6.D *Note 1*	Basic concepts of gas tanker operations		
	Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes	11.7.A *Note 1*	Basic concepts of bulk carriers		
	Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information	11.8.A	Develop a garbage plan		
		11.8.B	Loading of packaged dangerous goods		
	Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel	11.9.A *Note 1*	Conduct cargo transfer meeting		

Print Name of Candidate *Candidate's Mariner Reference No.*

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Carriage of dangerous goods	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the International Maritime Solid Bulk Cargoes (IMSBC) Code	13.1.A *Note 1*	Carriage of dangerous goods		
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions	15.1.A *Note 1*	Certificates required by international conventions		
	Certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity	15.1.B *Note 1*	Documents required aboard vessels		
		15.1.C *Note 1*	Documents required at arrival and departure		
	International Convention on Load Lines, 1966, as amended	15.2.A *Note 1*	International Convention on Load Lines		
	International Convention for the Safety of Life at Sea, 1974, as amended	15.3.A *Note 1*	International Convention for the Safety of Life at Sea		

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions International Convention for the Prevention of Pollution from Ships, as amended	15.4.A *Note 1*	MARPOL 73/78		
		15.4.B *Note 1*	MARPOL Annex I		
		15.4.C *Note 1*	MARPOL Annex II		
		15.4.D *Note 1*	MARPOL Annex III		
		15.4.E *Note 1*	MARPOL Annex IV		
		15.4.F *Note 1*	MARPOL Annex V		
		15.4.G *Note 1*	MARPOL Annex VI		
	Maritime declarations of health and the requirements of the International Health Regulations	15.5.A *Note 1*	International health regulations		
	International instruments affecting the safety of the ship, passengers, crew and cargo	15.6.A *Note 1*	International instruments affecting the safety of ship, passengers, crew, and cargo		
		15.6.B *Note 1*	International instruments affecting the safety of ship, passengers, crew, and cargo		
	Methods and aids to prevent pollution of the marine environment by ships	15.7.A *Note 1*	Pollution prevention		
	National legislation for implementing international agreements and conventions	15.8.A *Note 1*	National legislation implementing international conventions		

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

STCW Competence	STCW Knowledge, Understanding, and Proficiency	Task No.	Task Name	Assessor's Initials	Date
Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea)	16.1.A *Note 1*	Lifesaving appliance regulations		
	Organization of fire drills and abandon ship drills	16.2.A	Plan fire and emergency drill		
	Maintenance of operational condition of life-saving, fire-fighting and other safety systems	16.3.A	Develop a maintenance plan for lifesaving and firefighting equipment		
	Actions to be taken to protect and safeguard all persons on board in emergencies	16.4.A *Note 1*	Procedures to rescue persons from a ship in distress		
		16.4.B *Note 1*	Man overboard procedures		
	Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	16.5.A *Note 1*	Actions following fire, explosion, collision or grounding		
		16.5.B *Note 1*	Abandon ship procedures		
Develop emergency and damage control plans and handle emergency situations	Ship construction, including damage control	17.2.A	Prepare a damage control plan		

RECORD OF ASSESSMENT
MASTER OR CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

ASSESSOR AND VESSEL INFORMATION

Qualified Assessors (QAs) witnessing the successful demonstrations noted in this record should provide the information below relative to their service with the candidate. Prospective QAs should have a minimum of at least 1 year of experience as Master on vessels at least 1,600 GRT or 3,000 GT. For assessments signed on a military vessel, the assessor should have experience as Commanding Officer (CO) or Executive Officer (XO) on seagoing vessels of at least 200 GRT or 500 GT. Military assessors should only conduct assessments that are within their personal experience and are relevant to the vessel on which they are conducted. For example, assessments involving the carriage of cargo should not be performed on a vessel that does not carry cargo and/or by an assessor who lacks experience on cargo-carrying vessels. After December 31, 2021, QAs must be approved by the National Maritime Center (46 CFR 10.107). Qualified military personnel will not need to be approved as QAs and may continue to sign assessments on military vessels after December 31, 2021.

Vessel Name	Gross Tonnage	Dates of Service		Assessor Name	Assessor Signature	Sample Initials of Assessor	Assessor Mariner Ref. No.	Assessor Shipboard Position
		From	To					
M/V Spiny Norman	8,892	7/7/2019	8/8/2019	Douglas Dinsdale	Douglas Dinsdale	DD	543210	Master

Print Name of Candidate

Candidate's Mariner Reference No.

TRANSITION FROM FORMER ASSESSMENT SCHEME FOR MASTER AND CHIEF MATE ON VESSELS OF 3,000 GT OR MORE (MANAGEMENT LEVEL)

The assessments specified in this Navigation and Vessel Inspection Circular (NVIC) differ from those previously specified in National Maritime Center (NMC) Policy Letter 04-02. Among the differences are changes in the numbering scheme. The Coast Guard recognizes that mariners may be in the process of qualifying for a Management Level endorsement, and may have already completed Management Level assessments under the previous policy. In order to minimize the burden to these mariners, the Coast Guard will allow a reasonable transition period during which assessments from the old scheme will be accepted.

Until March 24, 2019, mariners may use some or all of the former assessments to meet the equivalent assessments specified in this NVIC. Previous model assessments should be signed by March 24, 2019 and submitted to the Coast Guard not later than March 24, 2019.

The following table identifies which assessments from the former scheme will satisfy the assessments specified in this NVIC. Mariners who present evidence of satisfactory completion of the assessment identified in the column titled "Old Assessment Number" may use the assessment as evidence of completing the corresponding task in the column titled "New Task Number."

Old Assessment Number	**New Task Number**	**Old Task**
If you completed this "old" assessment in NMC Policy Letter 04-02	*you do not need to complete this task*	
M-1-1A and M-1-1B	1.1.A	Create a Navigation Plan
		Position Reporting Systems
M-1-2A or M-1-2B	2.1.A	Latitude by Ex-Meridian (Sun)
		Latitude by Meridian Transit (Other Than Sun)
M-1-2C	2.1.B	Star Identification
M-1-2D	2.1.C	Star Selection
M-1-2G	1.2.A	Great Circle Sailing
M-1-2H	1.2.B	Mercator Sailing – Course & Distance
M-1-2I	1.2.C	Mercator Sailing – Final Position
M-1-4A	2.2.A	GPS – Waypoint Entry
M-2-1A	3.1.A	Determine Magnetic Compass Deviation
M-2-1C	3.1.A	Amplitude of the Sun

Old Assessment Number	New Task Number	Old Task Name
If you completed this "old" assessment in NMC Policy Letter 04-02,	*you do not need to complete this "new" task in this NVIC*	
M-2-1D	3.1.B	Apply Compass Error to Magnetic Course
M-2-1E	3.1.C	Apply Compass Error to Magnetic Bearings
M-2-1F	3.1.D	Apply Compass Error to Gyrocompass Course
M-3-1A	4.1.B	Coordinate Search & Rescue Operations
M-5-1D	5.3.A	Bridge Resource Management
M-6-1A	7.1.A	Weather Forecast (24 Hours)
M-6-2A	7.2.A	Identify Weather Fronts
M-6-3A	7.4.A	Calculate Height of Tides
M-6-3B	7.4.B	Calculate Tidal Current
M-6-3C	7.4.C	Calculate time of Height of Tide
M-7-1A	8.2.A	Actions after Grounding
M-7-2A	8.3.A	Re-floating a Grounded Ship
M-7-3A	8.4.A	Prepare for Collision
M-7-3B	8.4.B	Actions After a Collision
M-7-4A	8.6.A	Emergency Steering
M-7-5A	8.7.A	Emergency Towing
M-8-1A	9.1.A	Maneuver to Embark/Disembark a Pilot
M-8-2A	9.2.A	Transit Restricted Waters
M-8-3A	9.3.A	Constant Rate of Turn Techniques
M-8-4A	9.4.A	Shallow Water Effects - Squat
M-8-5A	9.5.A	Shallow Water Effects - Passing Vessels
M-8-6A	9.6.A	Vessel Docking — Starboard Side To
M-8-6B	9.6.B	Vessel Docking - Port Side To

Old Assessment Number	New Task Number	Old Task Name
If you completed this "old" assessment in NMC Policy Letter 04-02,	*you do not need to complete this "new" task in this NVIC*	
M-8-7A	9.7.A	Turn Vessel with Tug Assistance
M-8-8A	9.8.A	Anchoring
M-8-9A	9.9.A	Dragging Anchor
M-9-1A	11.3.A	Determine GM - Arrival
M-9-1B	11.3.B	Determine GM - Flooded Engine Room
M-9-1C	11.3.C	Determine GM - Flooded Hatch
M-9-1D	11.3.D	Determine Sheering Forces and Bending Moment

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 II
Standards regarding the master and deck department

Regulation II/2
Mandatory minimum requirements for certification of masters and chief mates on ships of 500 gross tonnage or more

* * * * *

Master and chief mate on ships of between 500 and 3,000 gross tonnage

3 Every master and chief mate on a seagoing ship of between 500 and 3,000 gross tonnage shall hold a certificate of competency.

4 Every candidate for certification shall:

.1 for certification as chief mate, meet the requirements of an officer in charge of a navigational watch on ships of 500 gross tonnage or more;

.2 for certification as master, meet the requirements of an officer in charge of a navigational watch on ships of 500 gross tonnage or more and have approved seagoing service of not less than 36 months in that capacity; however, this period may be reduced to not less than 24 months if not less than 12 months of such seagoing service has been served as chief mate; and

.3 have completed approved training and meet the standard of competence specified in section A-II/2 of the STCW Code for masters and chief mates on ships of between 500 and 3,000 gross tonnage.

Chapter VIII
Watchkeeping

Regulation VIII/2
Watchkeeping arrangements and principles to be observed

1 Administrations shall direct the attention of companies, masters, chief engineer officers and all watchkeeping personnel to the requirements, principles and guidance set out in the STCW Code which shall be observed to ensure that a safe continuous watch or watches appropriate to the prevailing circumstances and conditions are maintained on all seagoing ships at all times.

2 Administrations shall require the master of every ship to ensure that watchkeeping arrangements are adequate for maintaining a safe watch or watches, taking into account the prevailing circumstances and conditions and that, under the master's general direction:

.1 officers in charge of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they shall be physically present on the navigating bridge or in a directly associated location such as the chartroom or bridge control room at all times;

.2 radio operators are responsible for maintaining a continuous radio watch on appropriate frequencies during their periods of duty;

.3 officers in charge of an engineering watch, as defined in the STCW Code, under the direction of the chief engineer officer, shall be immediately available and on call to attend the machinery spaces and, when required, shall be physically present in the machinery space during their periods of responsibility;

.4 an appropriate and effective watch or watches are maintained for the purpose of safety at all times, while the ship is at anchor or moored and, if the ship is carrying hazardous cargo, the organization of such watch or watches takes full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions prevailing on board, afloat or ashore; and

.5 as applicable, an appropriate and effective watch or watches are maintained for the purposes of security.

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

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

.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.

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.

Additional performance standards

3 In addition to meeting the basic requirements set out in paragraphs 1 and 2, simulation equipment to which this section applies shall meet the performance standards given hereunder in accordance with their specific type.

Radar simulation

4 Radar simulation equipment shall be capable of simulating the operational capabilities of navigational radar equipment which meets all applicable performance standards adopted by the Organization* and incorporate facilities to:

.1 operate in the stabilized relative-motion mode and sea- and ground-stabilized true-motion modes;

.2 model weather, tidal streams, current, shadow sectors, spurious echoes and other propagation effects, and generate coastlines, navigational buoys and search and rescue transponders; and

.3 create a real-time operating environment incorporating at least two own-ship stations with ability to change own ship's course and speed, and include parameters for at least 20 target ships and appropriate communication facilities.

Automatic Radar Plotting Aid (ARPA) simulation

5 ARPA simulation equipment shall be capable of simulating the operational capabilities of ARPAs which meet all applicable performance standards adopted by the Organization*, and shall incorporate the facilities for:

.1 manual and automatic target acquisition;

.2 past track information;

.3 use of exclusion areas;

.4 vector/graphic time-scale and data display; and

.5 trial manoeuvres.

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.

* See relevant/appropriate performance standards adopted by the Organization.

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.

Chapter II
Standards regarding the master and deck department

Section A-II/2
Mandatory minimum requirements for certification of masters and chief mates on ships of 500 gross tonnage or more

Standard of competence

1 Every candidate for certification as master or chief mate of ships of 500 gross tonnage or more shall be required to demonstrate the competence to undertake, at the management level, the tasks, duties and responsibilities listed in column 1 of table A-II/2.

2 The minimum knowledge, understanding and proficiency required for certification is listed in column 2 of table A-II/2. This incorporates, expands and extends in depth the subjects listed in column 2 of table A-II/1 for officers in charge of a navigational watch.

3 Bearing in mind that the master has ultimate responsibility for the safety and security of the ship, its passengers, crew and cargo, and for the protection of the marine environment against pollution by the ship, and that a chief mate shall be in a position to assume that responsibility at any time, assessment in these subjects shall be designed to test their ability to assimilate all available information that affects the safety and security of the ship, its passengers, crew or cargo, or the protection of the marine environment.

4 The level of knowledge of the subjects listed in column 2 of table A-II/2 shall be sufficient to enable the candidate to serve in the capacity of master or chief mate[*].

5 The level of theoretical knowledge, understanding and proficiency required under the different sections in column 2 of table A-II/2 may be varied according to whether the certificate is to be valid for ships of 3,000 gross tonnage or more or for ships of between 500 gross tonnage and 3,000 gross tonnage.

6 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take into account the relevant requirements of this part and the guidance given in part B of this Code.

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[*] 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.

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

7 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and criteria for evaluating competence tabulated in columns 3 and 4 of table A-II/2.

Near-coastal voyages

8 An Administration may issue a certificate restricted to service on ships engaged exclusively on near-coastal voyages and, for the issue of such a certificate, may exclude such subjects as are not applicable to the waters or ships concerned, bearing in mind the effect on the safety of all ships which may be operating in the same waters.

Table A-II/2
Specification of minimum standard of competence for masters and chief mates on ships of 500 gross tonnage or more

Function: Navigation at the management level

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Plan a voyage and conduct navigation	Voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks, taking into account, e.g.: .1 restricted waters .2 meteorological conditions .3 ice .4 restricted visibility .5 traffic separation schemes .6 vessel traffic service (VTS) areas .7 areas of extensive tidal effects Routeing in accordance with the General Provisions on Ships' Routeing Reporting in accordance with the General principles for Ship Reporting Systems and with VTS procedures	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate .3 approved laboratory equipment training using: chart catalogues, charts, nautical publications and ship particulars	The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment All potential navigational hazards are accurately identified
Determine position and the accuracy of resultant position fix by any means	Position determination in all conditions: .1 by celestial observations .2 by terrestrial observations, including the ability to use	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience	The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions The fix obtained by

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
	appropriate charts, notices to mariners and other publications to assess the accuracy of the resulting position fix .3 using modern electronic navigational aids, with specific knowledge of their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing	.2 approved simulator training, where appropriate .3 approved laboratory equipment training using: .1 charts, nautical almanac, plotting sheets, chronometer, sextant and a calculator .2 charts, nautical publications and navigational instruments (azimuth mirror, sextant, log, sounding equipment, compass) and manufacturers' manuals .3 radar, terrestrial electronic position-fixing systems, satellite navigation systems and appropriate nautical charts and publications	celestial observations is within accepted accuracy levels The fix obtained by terrestrial observations is within accepted accuracy levels The accuracy of the resulting fix is properly assessed The fix obtained by the use of electronic navigational aids is within the accuracy standards of the systems in use. The possible errors affecting the accuracy of the resulting position are stated and methods of minimizing the effects of system errors on the resulting position are properly applied

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Determine and allow for compass errors	Ability to determine and allow for errors of the magnetic and gyro-compasses Knowledge of the principles of magnetic and gyro-compasses An understanding of systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate .3 approved laboratory equipment training using: celestial observations, terrestrial bearings and comparison between magnetic and gyro-compasses	The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Coordinate search and rescue operations	A thorough knowledge of and ability to apply the procedures contained in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate .3 approved laboratory equipment training using: relevant publications, charts, meteorological data, particulars of ships involved, radiocommunication equipment and other available facilities and one or more of the following: .1 approved SAR training course .2 approved simulator training, where appropriate .3 approved laboratory equipment training	The plan for coordinating search and rescue operations is in accordance with international guidelines and standards Radiocommunications are established and correct communication procedures are followed at all stages of the search and rescue operations
Establish watchkeeping arrangements and procedures	Thorough knowledge of content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended Thorough knowledge of the content, application and intent of the Principles to be	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where	Watchkeeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure the safety of navigation, protection 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**
	observed in keeping a navigational watch	appropriate	and safety of the ship and persons on board
Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making *Note*: Training and assessment in the use of ARPA is not required for those who serve exclusively on ships not fitted with ARPA. This limitation shall be reflected in the endorsement issued to the seafarer concerned	An appreciation of system errors and thorough understanding of the operational aspects of navigational systems Blind pilotage planning Evaluation of navigational information derived from all sources, including radar and ARPA, in order to make and implement command decisions for collision avoidance and for directing the safe navigation of the ship The interrelationship and optimum use of all navigational data available for conducting navigation	Examination and assessment of evidence obtained from approved ARPA simulator and one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate .3 approved laboratory equipment training	Information obtained from navigation equipment and systems is correctly interpreted and analysed, taking into account the limitations of the equipment and prevailing circumstances and conditions Action taken to avoid a close encounter or collision with another vessel is in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended
Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making Note: Training and assessment in the use of ECDIS is not required for those who serve exclusively on ships not fitted with ECDIS. This limitation shall be reflected in the endorsement issued to the seafarer concerned	Management of operational procedures, system files and data, including: .1 manage procurement, licensing and updating of chart data and system software to conform to established procedures .2 system and information updating, including the ability to update ECDIS system version in accordance with vendor's product development .3 create and maintain system configuration and backup files	Assessment of evidence obtained from one of the following: .1 approved in-service experience .2 approved training ship experience .3 approved ECDIS simulator training	Operational procedures for using ECDIS are established, applied, and monitored Actions taken to minimize risk to safety of navigation

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
	.4 create and maintain log files in accordance with established procedures .5 create and maintain route plan files in accordance with established procedures .6 use ECDIS log-book and track history functions for inspection of system functions, alarm settings and user responses Use ECDIS playback functionality for passage review, route planning and review of system functions		
Forecast weather and oceanographic conditions	Ability to understand and interpret a synoptic chart and to forecast area weather, taking into account local weather conditions and information received by weather fax Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants Knowledge of ocean current systems Ability to calculate tidal conditions Use all appropriate nautical publications on tides and currents	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved laboratory equipment training	The likely weather conditions predicted for a determined period are based on all available information Actions taken to maintain safety of navigation minimize any risk to safety of the ship Reasons for intended action are backed by statistical data and observations of the actual weather conditions

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Respond to navigational emergencies	Precautions when beaching a ship Action to be taken if grounding is imminent, and after grounding Refloating a grounded ship with and without assistance Action to be taken if collision is imminent and following a collision or impairment of the watertight integrity of the hull by any cause Assessment of damage control Emergency steering Emergency towing arrangements and towing procedure	Examination and assessment of evidence obtained from practical instruction, in-service experience and practical drills in emergency procedures	The type and scale of any problem is promptly identified and decisions and actions minimize the effects of any malfunction of the ship's systems Communications are effective and comply with established procedures Decisions and actions maximize safety of persons on board

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Manoeuvre and handle a ship in all conditions	Manoeuvring and handling a ship in all conditions, including: .1 manoeuvres when approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, headreach and stopping distances .2 handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response .3 application of constant-rate-of-turn techniques .4 manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching .5 interaction between passing ships and between own ship and nearby banks (canal effect) .6 berthing and unberthing under various conditions of wind, tide and current with and without tugs .7 ship and tug interaction .8 use of propulsion and manoeuvring systems	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate .3 approved manned scale ship model, where appropriate	All decisions concerning berthing and anchoring are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while berthed alongside or lying at anchor While under way, a full assessment is made of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various conditions of loading and weather

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Manoeuvre and handle a ship in all conditions *(continued)*	.9 choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used .10 dragging anchor; clearing fouled anchors .11 dry-docking, both with and without damage .12 management and handling of ships in heavy weather, including assisting a ship or aircraft in distress; towing operations; means of keeping an unmanageable ship out of trough of the sea, lessening drift and use of oil .13 precautions in manoeuvring to launch rescue boats or survival craft in bad weather .14 methods of taking on board survivors from rescue boats and survival craft .15 ability to determine the manoeuvring and propulsion characteristics of common types of ships, with special reference to stopping distances and turning circles at various draughts and speeds .16 importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave		

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Manoeuvre and handle a ship in all conditions (*continued*)	.17 practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board .18 use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas		
Operate remote controls of propulsion plant and engineering systems and services	Operating principles of marine power plants Ships' auxiliary machinery General knowledge of marine engineering terms	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate	Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times

Function: Cargo handling and stowage at the management level

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes	Knowledge of and ability to apply relevant international regulations, codes and standards concerning the safe handling, stowage, securing and transport of cargoes Knowledge of the effect on trim and stability of cargoes and cargo operations Use of stability and trim diagrams and	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate using: stability, trim and	The frequency and extent of cargo condition monitoring is appropriate to its nature and prevailing conditions Unacceptable or unforeseen variations in the condition or specification of the cargo are promptly recognized and remedial action is immediately taken and designed to safeguard the

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes (*continued*)	stress-calculating equipment, including automatic data-based (ADB) equipment, and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits Stowage and securing of cargoes on board ships, including cargo-handling gear and securing and lashing equipment Loading and unloading operations, with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing General knowledge of tankers and tanker operations Knowledge of the operational and design limitations of bulk carriers Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information Ability to explain the basic principles for establishing effective communications and	stress tables, diagrams and stress-calculating equipment	safety of the ship and those on board Cargo operations are planned and executed in accordance with established procedures and legislative requirements Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
	improving working relationship between ship and terminal personnel		
Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action	Knowledge of the limitations on strength of the vital constructional parts of a standard bulk carrier and ability to interpret given figures for bending moments and shear forces Ability to explain how to avoid the detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate using: stability, trim and stress tables, diagrams and stress-calculating equipment	Evaluations are based on accepted principles, well-founded arguments and correctly carried out. The decisions taken are acceptable, taking into consideration the safety of the ship and the prevailing conditions
Carriage of dangerous goods	International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and the International Maritime Solid Bulk Cargoes (IMSBC) Code Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved simulator training, where appropriate .3 approved specialist training	Planned distribution of cargo is based on reliable information and is in accordance with established guidelines and legislative requirements Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident

Function: Controlling the operation of the ship and care for persons on board at the management level

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Control trim, stability and stress	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability	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, where appropriate	Stability and stress conditions are maintained within safe limits at all times

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 and measures to ensure safety of life at sea, security and the protection of the marine environment	Knowledge of international maritime law embodied in international agreements and conventions Regard shall be paid especially to the following subjects: .1 certificates and other documents required to be carried on board ships by international conventions, how they may be obtained and their period of validity .2 responsibilities under the relevant requirements of the International Convention on Load Lines, 1966, as amended .3 responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea, 1974, as amended .4 responsibilities under the International Convention for the Prevention of Pollution from Ships, as amended	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, where appropriate	Procedures for monitoring operations and maintenance comply with legislative requirements Potential non-compliance is promptly and fully identified Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
	.5 maritime declarations of health and the requirements of the International Health Regulations .6 responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo .7 methods and aids to prevent pollution of the marine environment by ships .8 national legislation for implementing international agreements and conventions		
Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	Thorough knowledge of life-saving appliance regulations (International Convention for the Safety of Life at Sea) Organization of fire drills and abandon ship drills Maintenance of operational condition of life-saving, fire-fighting and other safety systems Actions to be taken to protect and safeguard all persons on board in emergencies Actions to limit damage and salve the ship following a fire, explosion, collision or grounding	Examination and assessment of evidence obtained from practical instruction and approved in-service training and experience	Procedures for monitoring fire-detection 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**
Develop emergency and damage control plans and handle emergency situations	Preparation of contingency plans for response to emergencies Ship construction, including damage control Methods and aids for fire prevention, detection and extinction Functions and use of life-saving appliances	Examination and assessment of evidence obtained from approved in-service training and experience	Emergency procedures are in accordance with the established plans for emergency situations
Use of leadership and managerial skill	Knowledge of shipboard personnel management and training A knowledge of related international maritime conventions and recommendations, and national legislation Ability to apply task and workload management, including: .1 planning and co-ordination .2 personnel assignment .3 time and resource constraints .4 prioritization Knowledge and ability to apply effective resource management: .1 allocation, assignment, and prioritization of resources .2 effective communication on board and ashore	Assessment of evidence obtained from one or more of the following: .1 approved training .2 approved in-service experience .3 approved simulator training	The crew are allocated duties and informed of expected standards of work and behaviour in a manner appropriate to the individuals concerned Training objectives and activities are based on assessment of current competence and capabilities and operational requirements Operations are demonstrated to be in accordance with applicable rules

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Use of leadership and managerial skill (*continued*)	.3 decisions reflect consideration of team experiences .4 assertiveness and leadership, including motivation .5 obtaining and maintaining situation awareness Knowledge and ability to apply decision-making techniques: .1 situation and risk assessment .2 identify and generate options .3 selecting course of action .4 evaluation of outcome effectiveness Development, implementation, and oversight of standard operating procedures		Operations are planned and resources are allocated as needed in correct priority to perform necessary tasks Communication is clearly and unambiguously given and received Effective leadership behaviours are demonstrated Necessary team member(s) share accurate understanding of current and predicted vessel state and operational status and external environment Decisions are most effective for the situation Operations are demonstrated to be effective and in accordance with applicable rules

Column 1	Column 2	Column 3	Column 4
Competence	**Knowledge, understanding and proficiency**	**Methods for demonstrating competence**	**Criteria for evaluating competence**
Organize and manage the provision of medical care on board	A thorough knowledge* of the use and contents of the following publications: .1 International Medical Guide for Ships or equivalent national publications .2 medical section of the International Code of Signals .3 Medical First Aid Guide for Use in Accidents Involving Dangerous Goods	Examination and assessment of evidence obtained from approved training	Actions taken and procedures followed correctly apply and make full use of advice available

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

Chapter VIII
Standards regarding watchkeeping

Section A-VIII/2
Watchkeeping arrangements and principles to be observed

Part 1 – Certification

1 The officer in charge of the navigational or deck watch shall be duly qualified in accordance with the provisions of chapter II or chapter VII appropriate to the duties related to navigational or deck watchkeeping.

2 The officer in charge of the engineering watch shall be duly qualified in accordance with the provisions of chapter III or chapter VII appropriate to the duties related to engineering watchkeeping.

Part 2 – Voyage Planning

General requirements

3 The intended voyage shall be planned in advance, taking into consideration all pertinent information, and any course laid down shall be checked before the voyage commences.

4 The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

Planning prior to each voyage

5 Prior to each voyage, the master of every ship shall ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications necessary for the intended voyage, containing accurate, complete and up-to-date information regarding those navigational limitations and hazards which are of a permanent or predictable nature and which are relevant to the safe navigation of the ship.

Verification and display of planned route

6 When the route planning is verified, taking into consideration all pertinent information, the planned route shall be clearly displayed on appropriate charts and shall be continuously available to the officer in charge of the watch, who shall verify each course to be followed prior to using it during the voyage.

Deviation from planned route

7 If a decision is made, during a voyage, to change the next port of call of the planned route, or if it is necessary for the ship to deviate substantially from the planned route for other reasons, then an amended route shall be planned prior to deviating substantially from the route originally planned.

Part 3 – Watchkeeping principles in general

8 Watches shall be carried out based on the following bridge and engine-room resource management principles:

.1 proper arrangements for watchkeeping personnel shall be ensured in accordance with the situations;

.2 any limitation in qualifications or fitness of individuals shall be taken into account when deploying watchkeeping personnel;

.3 understanding of watchkeeping personnel regarding their individual roles, responsibility and team roles shall be established;

.4 the master, chief engineer officer and officer in charge of watch duties shall maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel;

.5 watchkeeping personnel shall understand functions and operation of installations/equipment, and be familiar with handling them;

.6 watchkeeping personnel shall understand information and how to respond to information from each station/installation/equipment;

.7 information from the stations/installations/equipment shall be appropriately shared by all the watchkeeping personnel;

.8 watchkeeping personnel shall maintain an exchange of appropriate communication in any situation; and

.9 watchkeeping personnel shall notify the master/chief engineer officer/officer in charge of watch duties without any hesitation when in any doubt as to what action to take in the interest of safety.

Part 4 – Watchkeeping at sea

Principles applying to watchkeeping generally

9 Parties shall direct the attention of companies, masters, chief engineer officers and watchkeeping personnel to the following principles, which shall be observed to ensure that safe watches are maintained at all times.

10 The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational or cargo watch. Under the master’s general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.

11 The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

Protection of marine environment

12 The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Part 4-1 – Principles to be observed in keeping a navigational watch

13 The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972, as amended.

Lookout

14 A proper lookout shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972, as amended and shall serve the purpose of:

.1 maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment;

.2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

.3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

15 The lookout must be able to give full attention to the keeping of a proper lookout and no other duties shall be undertaken or assigned which could interfere with that task.

16 The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper lookout. The officer in charge of the navigational watch may be the sole lookout in daylight provided that, on each such occasion:

.1 the situation has been carefully assessed and it has been established without doubt that it is safe to do so;

.2 full account has been taken of all relevant factors, including, but not limited to:

– state of weather;

– visibility;

– traffic density;

– proximity of dangers to navigation; and

– the attention necessary when navigating in or near traffic separation schemes; and

.3 assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

17 In determining that the composition of the navigational watch is adequate to ensure that a proper lookout can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:

.1 visibility, state of weather and sea;

.2 traffic density, and other activities occurring in the area in which the vessel is navigating;

.3 the attention necessary when navigating in or near traffic separation schemes or other routeing measures;

.4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres;

.5 the fitness for duty of any crew members on call who are assigned as members of the watch;

.6 knowledge of, and confidence in, the professional competence of the ship's officers and crew;

.7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability;

.8 activities taking place on board the ship at any particular time, including radiocommunication activities, and the availability of assistance to be summoned immediately to the bridge when necessary;

.9 the operational status of bridge instrumentation and controls, including alarm systems;

.10 rudder and propeller control and ship manoeuvring characteristics;

.11 the size of the ship and the field of vision available from the conning position;

.12 the configuration of the bridge, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and

.13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

Watch arrangements

18 When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, *inter alia*, shall be taken into account:

.1 at no time shall the bridge be left unattended;

.2 weather conditions, visibility and whether there is daylight or darkness;

.3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;

.4 use and operational condition of navigational aids such as ECDIS, radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;

.5 whether the ship is fitted with automatic steering;

.6 whether there are radio duties to be performed;

.7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and their limitations; and

.8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

Taking over the watch

19 The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.

20 The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.

21 Prior to taking over the watch, relieving officers shall satisfy themselves as to the ship's estimated or true position and confirm its intended track, course and speed, and UMS controls as appropriate and shall note any dangers to navigation expected to be encountered during their watch.

22 Relieving officers shall personally satisfy themselves regarding the:

.1 standing orders and other special instructions of the master relating to navigation of the ship;

.2 position, course, speed and draught of the ship;

.3 prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;

.4 procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and

.5 navigational situation, including, but not limited to:

.5.1 the operational condition of all navigational and safety equipment being used or likely to be used during the watch;

.5.2 the errors of gyro- and magnetic compasses;

.5.3 the presence and movement of ships in sight or known to be in the vicinity;

.5.4 the conditions and hazards likely to be encountered during the watch; and

.5.5 the possible effects of heel, trim, water density and squat on under-keel clearance.

23 If, at any time, the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is taking place, the relief of that officer shall be deferred until such action has been completed.

Performing the navigational watch

24 The officer in charge of the navigational watch shall:

.1 keep the watch on the bridge;

.2 in no circumstances leave the bridge until properly relieved; and

.3 continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood.

25 During the watch, the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.

26 The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment.

27 The officer in charge of the navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.

28 When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended in force.

29 In cases of need, the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signalling apparatus. However, timely notice of intended variations of engine speed shall be given where possible or effective use shall be made of UMS engine controls provided on the bridge in accordance with the applicable procedures.

30 Officers of the navigational watch shall know the handling characteristics of their ship, including its stopping distances, and should appreciate that other ships may have different handling characteristics.

31 A proper record shall be kept during the watch of the movements and activities relating to the navigation of the ship.

32 It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper lookout is maintained. In a ship with a separate chartroom, the officer in charge of the navigational watch may visit the chartroom, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper lookout is maintained.

33 Operational tests of shipboard navigational equipment shall be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Whenever appropriate, these tests shall be recorded. Such tests shall also be carried out prior to port arrival and departure.

34 The officer in charge of the navigational watch shall make regular checks to ensure that:

.1 the person steering the ship or the automatic pilot is steering the correct course;

.2 the standard compass error is determined at least once a watch and, when possible, after any major alteration of course; the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;

.3 the automatic pilot is tested manually at least once a watch;

.4 the navigation and signal lights and other navigational equipment are functioning properly;

.5 the radio equipment is functioning properly in accordance with paragraph 86 of this section; and

.6 the UMS controls, alarms and indicators are functioning properly.

35 The officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the requirements in force of the International Convention for the Safety of Life at Sea (SOLAS), 1974[*]. The officer of the navigational watch shall take into account:

.1 the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and

.2 that, with a ship under automatic steering, it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the lookout in order to take emergency action.

36 Officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate and shall bear in mind that the echo-sounder is a valuable navigational aid.

37 The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters, having due regard to its limitations.

38 The officer in charge of the navigational watch shall ensure that the range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.

39 Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis is commenced in ample time.

40 The officer in charge of the navigational watch shall notify the master immediately:

.1 if restricted visibility is encountered or expected;

.2 if the traffic conditions or the movements of other ships are causing concern;

.3 if difficulty is experienced in maintaining course;

.4 on failure to sight land, or a navigation mark or to obtain soundings by the expected time;

.5 if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;

.6 on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;

[*] See SOLAS regulations V/24, V/25 and V/26.

.7 if the radio equipment malfunctions;

.8 in heavy weather, if in any doubt about the possibility of weather damage;

.9 if the ship meets any hazard to navigation, such as ice or a derelict; and

.10 in any other emergency or if in any doubt.

41 Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall, in addition, not hesitate to take immediate action for the safety of the ship, where circumstances so require.

42 The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper lookout.

Watchkeeping under different conditions and in different areas

Clear weather

43 The officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and shall bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer in charge of the navigational watch shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972, as amended and subsequently check that such action is having the desired effect.

44 In clear weather, whenever possible, the officer in charge of the navigational watch shall carry out radar practice.

Restricted visibility

45 When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972, as amended with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre. In addition, the officer in charge of the navigational watch shall:

.1 inform the master;

.2 post a proper lookout;

.3 exhibit navigation lights; and

.4 operate and use the radar.

In hours of darkness

46 The master and the officer in charge of the navigational watch, when arranging lookout duty, shall have due regard to the bridge equipment and navigational aids available for use, their limitations, procedures and safeguards implemented.

Coastal and congested waters

47 The largest scale chart on board, suitable for the area and corrected with the latest available information, shall be used. Fixes shall be taken at frequent intervals, and shall be carried out by more than one method whenever circumstances allow. When using ECDIS, appropriate usage code (scale) electronic navigational charts shall be used and the ship's position shall be checked by an independent means of position fixing at appropriate intervals.

48 The officer in charge of the navigational watch shall positively identify all relevant navigation marks.

Navigation with pilot on board

49 Despite the duties and obligations of pilots, their presence on board does not relieve the master or the officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.

50 If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

Ship at anchor

51 If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the navigational watch shall:

.1 determine and plot the ship's position on the appropriate chart as soon as practicable;

.2 when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;

.3 ensure that proper lookout is maintained;

.4 ensure that inspection rounds of the ship are made periodically;

.5 observe meteorological and tidal conditions and the state of the sea;

.6 notify the master and undertake all necessary measures if the ship drags anchor;

.7 ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;

.8 if visibility deteriorates, notify the master;

.9 ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and

.10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

*** * * * ***

Part 5 – Watchkeeping in port

Principles applying to all watchkeeping

General

90 On any ship safely moored or safely at anchor under normal circumstances in port, the master shall arrange for an appropriate and effective watch to be maintained for the purpose of safety. Special requirements may be necessary for special types of ships' propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly flammable materials or other special types of cargo.

Watch arrangements

91 Arrangements for keeping a deck watch when the ship is in port shall at all times be adequate to:

.1 ensure the safety of life, of the ship, the port and the environment, and the safe operation of all machinery related to cargo operation;

.2 observe international, national and local rules; and

.3 maintain order and the normal routine of the ship.

92 The master shall decide the composition and duration of the deck watch depending on the conditions of mooring, type of the ship and character of duties.

93 If the master considers it necessary, a qualified officer shall be in charge of the deck watch.

94 The necessary equipment shall be so arranged as to provide for efficient watchkeeping.

95 The chief engineer officer, in consultation with the master, shall ensure that engineering watchkeeping arrangements are adequate to maintain a safe engineering watch while in port. When deciding the composition of the engineering watch, which may include appropriate engine-room ratings, the following points are among those to be taken into account:

.1 on all ships of 3,000 kW propulsion power and over there shall always be an officer in charge of the engineering watch;

.2 on ships of less than 3,000 kW propulsion power there may be, at the master's discretion and in consultation with the chief engineer officer, no officer in charge of the engineering watch; and

.3 officers, while in charge of an engineering watch, shall not be assigned or undertake any task or duty which would interfere with their supervisory duty in respect of the ship's machinery system.

Taking over the watch

96 Officers in charge of the deck or engineering watch shall not hand over the watch to their relieving officer if they have any reason to believe that the latter is obviously not capable of carrying out watchkeeping duties effectively, in which case the master or chief engineer shall be notified accordingly. Relieving officers of the deck or engineering watch shall ensure that all members of their watch are apparently fully capable of performing their duties effectively.

97 If, at the moment of handing over the deck or engineering watch, an important operation is being performed, it shall be concluded by the officer being relieved, except when ordered otherwise by the master or chief engineer officer.

Part 5-1 – Taking over the deck watch

98 Prior to taking over the deck watch, the relieving officer shall be informed by the officer in charge of the deck watch as to the following:

.1 the depth of the water at the berth, the ship's draught, the level and time of high and low waters; the securing of the moorings, the arrangement of anchors and the scope of the anchor chain, and other mooring features important to the safety of the ship; the state of main engines and their availability for emergency use;

.2 all work to be performed on board the ship; the nature, amount and disposition of cargo loaded or remaining, and any residue on board after unloading the ship;

.3 the level of water in bilges and ballast tanks;

.4 the signals or lights being exhibited or sounded;

.5 the number of crew members required to be on board and the presence of any other persons on board;

.6 the state of fire-fighting appliances;

.7 any special port regulations;

.8 the master's standing and special orders;

.9 the lines of communication available between the ship and shore personnel, including port authorities, in the event of an emergency arising or assistance being required;

.10 any other circumstances of importance to the safety of the ship, its crew, cargo or protection of the environment from pollution; and

.11 the procedures for notifying the appropriate authority of any environmental pollution resulting from ship activities.

99 Relieving officers, before assuming charge of the deck watch, shall verify that:

.1 the securing of moorings and anchor chain is adequate;

.2 the appropriate signals or lights are properly exhibited or sounded;

.3 safety measures and fire-protection regulations are being maintained;

.4 they are aware of the nature of any hazardous or dangerous cargo being loaded or discharged and the appropriate action to be taken in the event of any spillage or fire; and

.5 no external conditions or circumstances imperil the ship and that it does not imperil others.

* * * * *

Part 5-3 – Performing the deck watch

102 The officer in charge of the deck watch shall:

.1 make rounds to inspect the ship at appropriate intervals;

.2 pay particular attention to:

.2.1 the condition and securing of the gangway, anchor chain and moorings, especially at the turn of the tide and in berths with a large rise and fall, if necessary, taking measures to ensure that they are in normal working condition;

.2.2 the draught, under-keel clearance and the general state of the ship, to avoid dangerous listing or trim during cargo handling or ballasting;

.2.3 the weather and sea state;

.2.4 the observance of all regulations concerning safety and fire protection;

.2.5 the water level in bilges and tanks;

.2.6 all persons on board and their location, especially those in remote or enclosed spaces; and

.2.7 the exhibition and sounding, where appropriate, of lights and signals;

.3 in bad weather, or on receiving a storm warning, take the necessary measures to protect the ship, persons on board and cargo;

.4 take every precaution to prevent pollution of the environment by the ship;

.5 in an emergency threatening the safety of the ship, raise the alarm, inform the master, take all possible measures to prevent any damage to the ship, its cargo and persons on board, and, if necessary, request assistance from the shore authorities or neighbouring ships;

.6 be aware of the ship's stability condition so that, in the event of fire, the shore fire-fighting authority may be advised of the approximate quantity of water that can be pumped on board without endangering the ship;

.7 offer assistance to ships or persons in distress;

.8 take necessary precautions to prevent accidents or damage when propellers are to be turned; and

.9 enter, in the appropriate log-book, all important events affecting the ship.

* * * * *

Part 5-5 – Watch in port on ships carrying hazardous cargo

General

105 The master of every ship carrying cargo that is hazardous, whether explosive, flammable, toxic, health-threatening or environment-polluting, shall ensure that safe watchkeeping arrangements are maintained. On ships carrying hazardous cargo in bulk, this will be achieved by the ready availability on board of a duly qualified officer or officers, and ratings where appropriate, even when the ship is safely moored or safely at anchor in port.

106 On ships carrying hazardous cargo other than in bulk, the master shall take full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions on board, afloat and ashore.

Part 5-6 – Cargo watch

107 Officers with responsibility for the planning and conduct of cargo operations shall ensure that such operations are conducted safely through the control of the specific risks, including when non-ship's personnel are involved."

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*.

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Section B-I/12

Guidance regarding the use of simulators

1 When simulators are being used for training or assessment of competency, the following guidelines should be taken into consideration in conducting any such training or assessment.

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

Training and assessment in radar observation and plotting*

2 Training and assessment in radar observation and plotting should:

.1 incorporate the use of radar simulation equipment; and

.2 conform to standards not inferior to those given in paragraphs 3 to 17 below.

3 Demonstrations of and practice in radar observation should be undertaken, where appropriate, on live marine radar equipment, including the use of simulators. Plotting exercises should preferably be undertaken in real time, in order to increase trainees' awareness of the hazards of the improper use of radar data and improve their plotting techniques to a standard of radar plotting commensurate with that necessary for the safe execution of collision-avoidance manoeuvring under actual seagoing conditions.

General

Factors affecting performance and accuracy

4 An elementary understanding should be attained of the principles of radar, together with a full practical knowledge of:

.1 range and bearing measurement, characteristics of the radar set which determine the quality of the radar display, radar antennae, polar diagrams, the effects of power radiated in directions outside the main beam, a non-technical description of the radar system, including variations in the features encountered in different types of radar set, performance monitors and equipment factors which affect maximum and minimum detection ranges and accuracy of information;

.2 the current marine radar performance specification adopted by the Organization**;

.3 the effects of the siting of the radar antenna, shadow sectors and arcs of reduced sensitivity, false echoes, effects of antenna height on detection ranges and of siting radar units and storing spares near magnetic compasses, including magnetic safe distances; and

.4 radiation hazards and safety precautions to be taken in the vicinity of antennae and open waveguides.

Detection of misrepresentation of information, including false echoes and sea returns

5 A knowledge of the limitations to target detection is essential, to enable the observer to estimate the dangers of failure to detect targets. The following factors should be emphasized:

.1 performance standard of the equipment;

.2 brilliance, gain and video processor control settings;

** See relevant/appropriate performance standards adopted by the Organization.

.3 radar horizon;

.4 size, shape, aspect and composition of targets;

.5 effects of the motion of the ship in a seaway;

.6 propagation conditions;

.7 meteorological conditions; sea clutter and rain clutter;

.8 anti-clutter control settings;

.9 shadow sectors; and

.10 radar-to-radar interference.

6 A knowledge should be attained of factors which might lead to faulty interpretation, including false echoes, effects of nearby pylons and large structures, effects of power lines crossing rivers and estuaries, echoes from distant targets occurring on second or later traces.

7 A knowledge should be attained of aids to interpretation, including corner reflectors and radar beacons; detection and recognition of land targets; the effects of topographical features; effects of pulse length and beam width; radar-conspicuous and -inconspicuous targets; factors which affect the echo strength from targets.

Practice

Setting up and maintaining displays

8 A knowledge should be attained of:

.1 the various types of radar display mode; unstabilized ship's-head-up relative motion; ship's-head-up, course-up and north-up stabilized relative motion and true motion;

.2 the effects of errors on the accuracy of information displayed; effects of transmitting compass errors on stabilized and true-motion displays; effects of transmitting log errors on a true-motion display; and the effects of inaccurate manual speed settings on a true-motion display;

.3 methods of detecting inaccurate speed settings on true-motion controls; the effects of receiver noise limiting the ability to display weak echo returns, and the effects of saturation by receiver noise, etc.; the adjustment of operational controls; criteria which indicate optimum points of adjustment; the importance of proper adjustment sequence, and the effects of maladjusted controls; the detection of maladjustments and corrections of:

.3.1 controls affecting detection ranges; and

.3.2 controls affecting accuracy;

.4 the dangers of using radar equipment with maladjusted controls; and

.5 the need for frequent regular checking of performance, and the relationship of the performance indicator to the range performance of the radar set.

Range and bearing

9 A knowledge should be attained of:

.1 the methods of measuring ranges; fixed range markers and variable range markers;

.2 the accuracy of each method and the relative accuracy of the different methods;

.3 how range data are displayed; ranges at stated intervals, digital counter and graduated scale;

.4 the methods of measuring bearings; rotatable cursor on transparent disc covering the display, electronic bearing cursor and other methods;

.5 bearing accuracy and inaccuracies caused by parallax, heading marker displacement, centre maladjustment;

.6 how bearing data are displayed; graduated scale and digital counter; and

.7 the need for regular checking of the accuracy of ranges and bearings, methods of checking for inaccuracies and correcting or allowing for inaccuracies.

Plotting techniques and relative-motion concepts

10 Practice should be provided in manual plotting techniques, including the use of reflection plotters, with the objective of establishing a thorough understanding of the interrelated motion between own ship and other ships, including the effects of manoeuvring to avoid collision. At the preliminary stages of this training, simple plotting exercises should be designed to establish a sound appreciation of plotting geometry and relative-motion concepts. The degree of complexity of exercises should increase throughout the training course until the trainee has mastered all aspects of the subject. Competence can best be enhanced by exposing the trainee to real-time exercises performed on a simulator or using other effective means.

Identification of critical echoes

11 A thorough understanding should be attained of:

.1 position fixing by radar from land targets and sea marks;

.2 the accuracy of position fixing by ranges and by bearings;

.3 the importance of cross-checking the accuracy of radar against other navigational aids; and

.4 the value of recording ranges and bearings at frequent, regular intervals when using radar as an aid to collision avoidance.

Course and speed of other ships

12 A thorough understanding should be attained of:

.1 the different methods by which course and speed of other ships can be obtained from recorded ranges and bearings, including:

.1.1 the unstabilized relative plot;

.1.2 the stabilized relative plot; and

.1.3 the true plot; and

.2 the relationship between visual and radar observations, including detail and the accuracy of estimates of course and speed of other ships, and the detection of changes in movements of other ships.

Time and distance of closest approach of crossing, meeting or overtaking ships

13 A thorough understanding should be attained of:

.1 the use of recorded data to obtain:

.1.1 measurement of closest approach distance and bearing;

.1.2 time to closest approach; and

.2 the importance of frequent, regular observations.

Detecting course and speed changes of other ships

14 A thorough understanding should be attained of:

.1 the effects of changes of course and/or speed by other ships on their tracks across the display;

.2 the delay between change of course or speed and detection of that change; and

.3 the hazards of small changes as compared with substantial changes of course or speed in relation to rate and accuracy of detection.

Effects of changes in own ship's course or speed or both

15 A thorough understanding of the effects on a relative-motion display of own ship's movements, and the effects of other ships' movements and the advantages of compass stabilization of a relative display.

16 In respect of true-motion displays, a thorough understanding should be attained of:

.1 the effects of inaccuracies of:

.1.1 speed and course settings; and

.1.2 compass stabilization data driving a stabilized relative-motion display;

.2 the effects of changes in course or speed or both by own ship on tracks of other ships on the display; and

.3 the relationship of speed to frequency of observations.

Application of the International Regulations for Preventing Collisions at Sea, 1972, as amended

17 A thorough understanding should be attained of the relationship of the International Regulations for Preventing Collisions at Sea, 1972, as amended to the use of radar, including:

.1 action to avoid collision, dangers of assumptions made on inadequate information and the hazards of small alterations of course or speed;

.2 the advantages of safe speed when using radar to avoid collision;

.3 the relationship of speed to closest approach distance and time and to the manoeuvring characteristics of various types of ships;

.4 the importance of radar observation reports and radar reporting procedures being well defined;

.5 the use of radar in clear weather, to obtain an appreciation of its capabilities and limitations, compare radar and visual observations and obtain an assessment of the relative accuracy of information;

.6 the need for early use of radar in clear weather at night and when there are indications that visibility may deteriorate;

.7 comparison of features displayed by radar with charted features; and

.8 comparison of the effects of differences between range scales.

Training and assessment in the operational use of

Automatic Radar Plotting Aids (ARPA)

18 Training and assessment in the operational use of automatic radar plotting aids (ARPA) should:

.1 require prior completion of the training in radar observation and plotting or combine that training with the training given in paragraphs 19 to 35 below;[*]

.2 incorporate the use of ARPA simulation equipment; and

.3 conform to standards not inferior to those given in paragraphs 19 to 35 below.

19 Where ARPA training is provided as part of the general training under the 1978 STCW Convention, masters, chief mates and officers in charge of a navigational watch should understand the factors involved in decision-making based on the information supplied by ARPA

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

in association with other navigational data inputs, having a similar appreciation of the operational aspects and of system errors of modern electronic navigational systems, including ECDIS. This training should be progressive in nature, commensurate with the responsibilities of the individual and the certificates issued by Parties under the 1978 STCW Convention.

Theory and demonstration

Possible risks of over-reliance on ARPA

20 Appreciation that ARPA is only a navigational aid and:

.1 that its limitations, including those of its sensors, make over-reliance on ARPA dangerous, in particular for keeping a look-out; and

.2 the need to observe at all times the Principles to be observed in keeping a navigational watch and the Guidance on keeping a navigational watch.

Principal types of ARPA systems and their display characteristics

21 Knowledge of the principal types of ARPA systems in use; their various display characteristics and an understanding of when to use ground- or sea-stabilized modes and north-up, course-up or head-up presentations.

IMO performance standards for ARPA

22 An appreciation of the IMO performance standards for ARPA, in particular the standards relating to accuracy.*

Factors affecting system performance and accuracy

23 Knowledge of ARPA sensor input performance parameters – radar, compass and speed inputs and the effects of sensor malfunction on the accuracy of ARPA data.

24 Knowledge of:

.1 the effects of the limitations of radar range and bearing discrimination and accuracy and the limitations of compass and speed input accuracies on the accuracy of ARPA data; and

.2 factors which influence vector accuracy.

Tracking capabilities and limitations

25 Knowledge of:

.1 the criteria for the selection of targets by automatic acquisition;

* See relevant/appropriate performance standards adopted by the Organization.

.2 the factors leading to the correct choice of targets for manual acquisition;

.3 the effects on tracking of "lost" targets and target fading; and

.4 the circumstances causing "target swap" and its effects on displayed data.

Processing delays

26 Knowledge of the delays inherent in the display of processed ARPA information, particularly on acquisition and re-acquisition or when a tracked target manoeuvres.

Operational warnings, their benefits and limitations

27 Appreciation of the uses, benefits and limitations of ARPA operational warnings and their correct setting, where applicable, to avoid spurious interference.

System operational tests

28 Knowledge of:

.1 methods of testing for malfunctions of ARPA systems, including functional self-testing; and

.2 precautions to be taken after a malfunction occurs.

Manual and automatic acquisition of targets and their respective limitations

29 Knowledge of the limits imposed on both types of acquisition in multi-target scenarios, and the effects on acquisition of target fading and target swap.

True and relative vectors and typical graphic representation of target information and danger areas

30 Thorough knowledge of true and relative vectors; derivation of targets' true courses and speeds, including:

.1 threat assessment, derivation of predicted closest point of approach and predicted time to closest point of approach from forward extrapolation of vectors, the use of graphic representation of danger areas;

.2 the effects of alterations of course and/or speed of own ship and/or targets on predicted closest point of approach and predicted time to closest point of approach and danger areas;

.3 the effects of incorrect vectors and danger areas; and

.4 the benefit of switching between true and relative vectors.

Information on past positions of targets being tracked

31 Knowledge of the derivation of past positions of targets being tracked, recognition of historic data as a means of indicating recent manoeuvring of targets and as a method of checking the validity of the ARPA's tracking.

Practice

Setting up and maintaining displays

32 Ability to demonstrate:

.1 the correct starting procedure to obtain the optimum display of ARPA information;

.2 the selection of display presentation; stabilized relative-motion displays and true-motion displays;

.3 the correct adjustment of all variable radar display controls for optimum display of data;

.4 the selection, as appropriate, of required speed input to ARPA;

.5 the selection of ARPA plotting controls, manual/automatic acquisition, vector/graphic display of data;

.6 the selection of the timescale of vectors/graphics;

.7 the use of exclusion areas when automatic acquisition is employed by ARPA; and

.8 performance checks of radar, compass, speed input sensors and ARPA.

System operational tests

33 Ability to perform system checks and determine data accuracy of ARPA, including the trial manoeuvre facility, by checking against basic radar plot.

Obtaining information from the ARPA display

34 Demonstrate the ability to obtain information in both relative- and true-motion modes of display, including:

.1 the identification of critical echoes;

.2 the speed and direction of target's relative movement;

.3 the time to, and predicted range at, target's closest point of approach;

.4 the courses and speeds of targets;

.5 detecting course and speed changes of targets and the limitations of such information;

.6 the effect of changes in own ship's course or speed or both; and

.7 the operation of the trial manoeuvre facility.

Application of the International Regulations for Preventing Collisions at Sea, 1972, as amended

35 Analysis of potential collision situations from displayed information, determination and execution of action to avoid close-quarters situations in accordance with the International Regulations for Preventing Collisions at Sea, 1972, as amended, in force.

Training and assessment in the operational use of Electronic Chart Display and Information Systems (ECDIS)

Introduction

36 When simulators are being used for training or assessment in the operational use of Electronic Chart Display and Information Systems (ECDIS), the following interim guidance should be taken into consideration in any such training or assessment.

37 Training and assessment in the operational use of the ECDIS should:

.1 incorporate the use of ECDIS simulation equipment; and

.2 conform to standards not inferior to those given in paragraphs 38 to 65 below.

38 ECDIS simulation equipment should, in addition to meeting all applicable performance standards set out in section A-I/12 of the STCW Code, as amended, be capable of simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization, incorporate facilities to generate soundings and:

.1 create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed; and

.2 realistically simulate "own ship" characteristics in open-water conditions, as well as the effects of weather, tidal stream and currents.

39 Demonstrations of, and practice in, ECDIS use should be undertaken, where appropriate, through the use of simulators. Training exercises should preferably be undertaken in real time, in order to increase trainees' awareness of the hazards of the improper use of ECDIS. Accelerated timescale may be used only for demonstrations.

General

Goals of an ECDIS training programme

40 The ECDIS trainee should be able to:

.1 operate the ECDIS equipment, use the navigational functions of ECDIS, select and assess all relevant information and take proper action in the case of a malfunction;

.2 state the potential errors of displayed data and the usual errors of interpretation; and

.3 explain why ECDIS should not be relied upon as the sole reliable aid to navigation.

Theory and demonstration

41 As the safe use of ECDIS requires knowledge and understanding of the basic principles governing ECDIS data and their presentation rules as well as potential errors in displayed data and ECDIS-related limitations and potential dangers**,** a number of lectures covering the theoretical explanation should be provided. As far as possible, such lessons should be presented within a familiar context and make use of practical examples. They should be reinforced during simulator exercises.

42 For safe operation of ECDIS equipment and ECDIS-related information (use of the navigational functions of ECDIS, selection and assessment of all relevant information, becoming familiar with ECDIS man–machine interfacing), practical exercises and training on the ECDIS simulators should constitute the main content of the course.

43 For the definition of training objectives, a structure of activities should be defined. A detailed specification of learning objectives should be developed for each topic of this structure.

Simulator exercises

44 Exercises should be carried out on individual ECDIS simulators, or full-mission navigation simulators including ECDIS, to enable trainees to acquire the necessary practical skills. For real-time navigation exercises, navigation simulators are recommended to cover the complex navigation situation. The exercises should provide training in the use of the various scales, navigational modes, and display modes which are available, so that the trainees will be able to adapt the use of the equipment to the particular situation concerned.

45 The choice of exercises and scenarios is governed by the simulator facilities available. If one or more ECDIS workstations and a full-mission simulator are available, the workstations may primarily be used for basic exercises in the use of ECDIS facilities and for passage-planning exercises, whereas full-mission simulators may primarily be used for exercises related to passage-monitoring functions in real time, as realistic as possible in connection with the total workload of a navigational watch. The degree of complexity of exercises should increase throughout the training programme until the trainee has mastered all aspects of the learning subject.

46 Exercises should produce the greatest impression of realism. To achieve this, the scenarios should be located in a fictitious sea area. Situations, functions and actions for different learning objectives which occur in different sea areas can be integrated into one exercise and experienced in real time.

47 The main objective of simulator exercises is to ensure that trainees understand their responsibilities in the operational use of ECDIS in all safety-relevant aspects and are thoroughly familiar with the system and equipment used.

Principal types of ECDIS systems and their display characteristics

48 The trainee should gain knowledge of the principal types of ECDIS in use; their various display characteristics, data structure and an understanding of:

.1 differences between vector and raster charts;

.2 differences between ECDIS and ECS;

.3 differences between ECDIS and RCDS*;

.4 characteristics of ECDIS and their different solutions; and

.5 characteristics of systems for special purposes (unusual situations/emergencies).

Risks of over-reliance on ECDIS

49 The training in ECDIS operational use should address:

.1 the limitations of ECDIS as a navigational tool;

.2 potential risk of improper functioning of the system;

.3 system limitations, including those of its sensors;

.4 hydrographic data inaccuracy; limitations of vector and raster electronic charts (ECDIS *vs* RCDS and ENC *vs* RNC); and

.5 potential risk of human errors.

Emphasis should be placed on the need to keep a proper look-out and to perform periodical checking, especially of the ship's position, by ECDIS-independent methods.

Detection of misrepresentation of information

50 Knowledge of the limitations of the equipment and detection of misrepresentation of information is essential for the safe use of ECDIS. The following factors should be emphasized during training:

.1 performance standards of the equipment;

.2 radar data representation on an electronic chart, elimination of discrepancy between the radar image and the electronic chart;

.3 possible projection discrepancies between an electronic and paper charts;

.4 possible scale discrepancies (overscaling and underscaling) in displaying an electronic chart and its original scale;

* SN/Circ.207/Rev.1 – Differences between RCDS and ECDIS.

.5 effects of using different reference systems for positioning;

.6 effects of using different horizontal and vertical datums;

.7 effects of the motion of the ship in a seaway;

.8 ECDIS limitations in raster chart display mode;

.9 potential errors in the display of:

.9.1 the own ship's position;

.9.2 radar data and ARPA and AIS information;

.9.3 different geodetic coordinate systems; and

.10 verification of the results of manual or automatic data correction:

.10.1 comparison of chart data and radar picture; and

.10.2 checking the own ship's position by using the other independent position-fixing systems.

51 False interpretation of the data and proper action taken to avoid errors of interpretation should be explained. The implications of the following should be emphasized:

.1 ignoring overscaling of the display;

.2 uncritical acceptance of the own ship's position;

.3 confusion of display mode;

.4 confusion of chart scale;

.5 confusion of reference systems;

.6 different modes of presentation;

.7 different modes of vector stabilization;

.8 differences between true north and gyro north (radar);

.9 using the same data reference system;

.10 using the appropriate chart scale;

.11 using the best-suited sensor to the given situation and circumstances;

.12 entering the correct values of safety data:

.12.1 the own ship's safety contour,

.12.2 safety depth (safe water), and

.12.3 events; and

.13 proper use of all available data.

52 Appreciation that RCDS is only a navigational aid and that, when operating in the RCDS mode, the ECDIS equipment should be used together with an appropriate portfolio of up-to-date paper charts:

.1 appreciation of the differences in operation of RCDS mode as described in SN.1/Circ.207/Rev.1 “Differences between RCDS and ECDIS”; and

.2 ECDIS, in any mode, should be used in training with an appropriate portfolio of up-to-date charts.

Factors affecting system performance and accuracy

53 An elementary understanding should be attained of the principles of ECDIS, together with a full practical knowledge of:

.1 starting and setting up ECDIS; connecting data sensors: satellite and radio navigation system receivers, radar, gyro-compass, log, echo-sounder; accuracy and limitations of these sensors, including effects of measurement errors and ship’s position accuracy, manoeuvring on the accuracy of course indicator’s performance, compass error on the accuracy of course indication, shallow water on the accuracy of log performance, log correction on the accuracy of speed calculation, disturbance (sea state) on the accuracy of an echo-sounder performance; and

.2 the current performance standards for electronic chart display and information systems adopted by the Organization[*].

Practice

Setting up and maintaining display

54 Knowledge and skills should be attained in:

.1 the correct starting procedure to obtain the optimum display of ECDIS information;

.2 the selection of display presentation (standard display, display base, all other information displayed individually on demand);

.3 the correct adjustment of all variable radar/ARPA display controls for optimum display of data;

.4 the selection of convenient configuration;

.5 the selection, as appropriate, of required speed input to ECDIS;

.6 the selection of the timescale of vectors; and

.7 performance checks of position, radar/ARPA, compass, speed input sensors and ECDIS.

[*] See relevant/appropriate performance standards adopted by the Organization.

Operational use of electronic charts

55 Knowledge and skills should be attained in:

.1 the main characteristics of the display of ECDIS data and selecting proper information for navigational tasks;

.2 the automatic functions required for monitoring ship's safety, such as display of position, heading/gyro course, speed, safety values and time;

.3 the manual functions (by the cursor, electronic bearing line, range rings);

.4 selecting and modification of electronic chart content;

.5 scaling (including underscaling and overscaling);

.6 zooming;

.7 setting of the own ship's safety data;

.8 using a daytime or night-time display mode;

.9 reading all chart symbols and abbreviations;

.10 using different kinds of cursors and electronic bars for obtaining navigational data;

.11 viewing an area in different directions and returning to the ship's position;

.12 finding the necessary area, using geographical coordinates;

.13 displaying indispensable data layers appropriate to a navigational situation;

.14 selecting appropriate and unambiguous data (position, course, speed, etc.);

.15 entering the mariner's notes;

.16 using north-up orientation presentation and other kinds of orientation; and

.17 using true- and relative-motion modes.

Route planning

56 Knowledge and skills should be attained in:

.1 loading the ship's characteristics into ECDIS;

.2 selection of a sea area for route planning:

.2.1 reviewing required waters for the sea passage, and

.2.2 changing over of chart scale;

.3 verifying that proper and updated charts are available;

.4 route planning on a display by means of ECDIS, using the graphic editor, taking into consideration rhumb line and great-circle sailing:

.4.1 using the ECDIS database for obtaining navigational, hydro-meteorological and other data;

.4.2 taking into consideration turning radius and wheel-over points/lines when they are expressed on chart scale;

.4.3 marking dangerous depths and areas and exhibiting guarding depth contours;

.4.4 marking waypoints with the crossing depth contours and critical cross-track deviations, as well as by adding, replacing and erasing of waypoints;

.4.5 taking into consideration safe speed;

.4.6 checking pre-planned route for navigational safety; and

.4.7 generating alarms and warnings;

.5 route planning with calculation in the table format, including:

.5.1 waypoints selection;

.5.2 recalling the waypoints list;

.5.3 planning notes;

.5.4 adjustment of a planned route;

.5.5 checking a pre-planned route for navigational safety;

.5.6 alternative route planning;

.5.7 saving planned routes, loading and unloading or deleting routes;

.5.8 making a graphic copy of the monitor screen and printing a route;

.5.9 editing and modification of the planned route;

.5.10 setting of safety values according to the size and manoeuvring parameters of the vessel;

.5.11 back-route planning; and

.5.12 connecting several routes.

Route monitoring

57 Knowledge and skills should be attained in:

.1 using independent data to control ship's position or using alternative systems within ECDIS;

.2 using the look-ahead function:

.2.1 changing charts and their scales;

.2.2 reviewing navigational charts;

.2.3 vector time selecting;

.2.4 predicting the ship's position for some time interval;

.2.5 changing the pre-planned route (route modification);

.2.6 entering independent data for the calculation of wind drift and current allowance;

.2.7 reacting properly to the alarm;

.2.8 entering corrections for discrepancies of the geodetic datum;

.2.9 displaying time markers on a ship's route;

.2.10 entering ship's position manually; and

.2.11 measuring coordinates, course, bearings and distances on a chart.

Alarm handling

58 Knowledge and ability to interpret and react properly to all kinds of systems, such as navigational sensors, indicators, data and charts alarms and indicator warnings, including, switching the sound and visual alarm signalling system, should be attained in case of:

.1 absence of the next chart in the ECDIS database;

.2 crossing a safety contour;

.3 exceeding cross-track limits;

.4 deviation from planned route;

.5 approaching a waypoint;

.6 approaching a critical point;

.7 discrepancy between calculated and actual time of arrival to a waypoint;

.8 information on under-scaling or over-scaling;

.9 approaching an isolated navigational danger or danger area;

.10 crossing a specified area;

.11 selecting a different geodetic datum;

.12 approaching other ships;

.13 watch termination;

.14 switching timer;

.15 system test failure;

.16 malfunctioning of the positioning system used in ECDIS;

.17 failure of dead-reckoning; and

.18 inability to fix vessel's position using the navigational system.

Manual correction of a ship's position and motion parameters

59 Knowledge and skills should be attained in manually correcting:

.1 the ship's position in dead-reckoning mode, when the satellite and radio navigation system receiver is switched off;

.2 the ship's position, when automatically obtained coordinates are inaccurate; and

.3 course and speed values.

Records in the ship's log

60 Knowledge and skills should be attained in:

.1 automatic voyage recording;

.2 reconstruction of past track, taking into account:

.2.1 recording media;

.2.2 recording intervals;

.2.3 verification of database in use;

.3 viewing records in the electronic ship's log;

.4 instant recording in the electronic ship's log;

.5 changing ship's time;

.6 entering the additional data;

.7 printing the content of the electronic ship's log;

.8 setting up the automatic record time intervals;

.9 composition of voyage data and reporting; and

.10 interface with a voyage data recorder (VDR).

Chart updating

61 Knowledge and skills should be attained in:

.1 performing manual updating of electronic charts. Special attention should be paid to reference-ellipsoid conformity and to conformity of the measurement units used on a chart and in the correction text;

.2 performing semi-automatic updating of electronic charts, using the data obtained on electronic media in the electronic chart format; and

.3 performing automatic updating of electronic charts, using update files obtained via electronic data communication lines.

In the scenarios where non-updated data are employed to create a critical situation, trainees should be required to perform *ad hoc* updating of the chart.

Operational use of ECDIS where radar/ARPA is connected

62 Knowledge and skills should be attained in:

.1 connecting ARPA to ECDIS;

.2 indicating target's speed vectors;

.3 indicating target's tracks;

.4 archiving target's tracks;

.5 viewing the table of the targets;

.6 checking alignment of radar overlay with charted geographic features;

.7 simulating one or more manoeuvres;

.8 corrections to own ship's position, using a reference point captured by ARPA; and

.9 corrections using the ARPA's cursor and electronic bar.

See also section B-I/12, Guidance regarding the use of simulators (pertaining to radar and ARPA), especially paragraphs 17 to 19 and 36 to 38.

Operational use of ECDIS where AIS is connected

63 Knowledge and skills should be attained in:

.1 interface with AIS;

.2 interpretation of AIS data;

.3 indicating target's speed vectors;

.4 indicating target's tracks; and

.5 archiving target's tracks.

Operational warnings, their benefits and limitations

64 Trainees should gain an appreciation of the uses, benefits and limitations of ECDIS operational warnings and their correct setting, where applicable, to avoid spurious interference.

System operational tests

65 Knowledge and skills should be attained in:

.1 methods of testing for malfunctions of ECDIS, including functional self-testing;

.2 precautions to be taken after a malfunction occurs; and

.3 adequate back-up arrangements (take over and navigate using the back-up system).

Debriefing exercise

66 The instructor should analyze the results of all exercises completed by all trainees and print them out. The time spent on the debriefing should occupy between 10% and 15% of the total time used for simulator exercises.

Recommended performance standards for non-mandatory types of simulation

67 Performance standards for non-mandatory simulation equipment used for training and/or assessment of competence or demonstration of skills are set out hereunder. Such forms of simulation include, but are not limited to, the following types:

.1 navigation and watchkeeping;

.2 ship handling and manoeuvring;

.3 cargo handling and stowage;

.4 reporting and radiocommunications; and

.5 main and auxiliary machinery operation.

Navigation and watchkeeping simulation

68 Navigation and watchkeeping simulation equipment should, in addition to meeting all applicable performance standards set out in section A-I/12, be capable of simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization,* incorporate facilities to generate soundings and:

.1 create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed;

.2 provide a realistic visual scenario by day or by night, including variable visibility, or by night only as seen from the bridge, with a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the navigation and watchkeeping tasks and objectives;

.3 realistically simulate "own ship" dynamics in open-water conditions, including the effects of weather, tidal stream, currents and interaction with other ships; and

.4 realistically simulate VTS communication procedures between ship and shore.

Ship handling and manoeuvring simulation

69 In addition to meeting the performance standards set out in paragraph 37, ship handling simulation equipment should:

.1 provide a realistic visual scenario as seen from the bridge, by day and by night, with variable visibility throughout a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the ship handling and manoeuvring training tasks and objectives;** and

.2 realistically simulate "own ship" dynamics in restricted waterways, including shallow-water and bank effects.

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* See relevant/appropriate performance standards adopted by the Organization.

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

70 Where manned scale models are used to provide ship handling and manoeuvring simulation, in addition to the performance standards set out in paragraphs 68.3 and 69.2, such equipment should:

.1 incorporate scaling factors which present accurately the dimensions, areas, volume and displacement, speed, time and rate of turn of a real ship; and

.2 incorporate controls for the rudder and engines, to the correct timescale.

Cargo handling and stowage simulation

71 Cargo handling simulation equipment should be capable of simulating cargo handling and control equipment which meets all applicable performance standards adopted by the Organization[***] and incorporate facilities to:

.1 create an effective operational environment, including a cargo-control station with such instrumentation as may be appropriate to the particular type of cargo system modelled;

.2 model loading and unloading functions and stability and stress data appropriate to the cargo-handling tasks to be carried out and the skills to be assessed; and

.3 simulate loading, unloading, ballasting and deballasting operations and appropriate associated calculations for stability, trim, list, longitudinal strength, torsional stress and damage stability[*].

GMDSS communication simulation

72 GMDSS communication simulation equipment should be capable of simulating GMDSS communication equipment which meets all applicable performance standards adopted by the Organization[**] and incorporate facilities to:

.1 simulate the operation of VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the Restricted Operator's Certificate (ROC);

.2 simulate the operation of INMARSAT-A, -B and -C ship earth stations, MF/HF NBDP, MF/HF-DSC, VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the General Operator's Certificate (GOC);

.3 provide voice communication with background noise;

.4 provide a printed text communication facility; and

[***] No standards have as yet been adopted by the Organization.

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

[**] See relevant/appropriate performance standards adopted by the Organization.

.5 create a real-time operating environment, consisting of an integrated system, incorporating at least one instructor/assessor station and at least two GMDSS ship or shore stations.

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Chapter II

Guidance regarding the master and the deck department

Section B-II/2

Guidance regarding the certification of masters and chief mates on ships of 500 gross tonnage or more

(See section B-II/1 for guidance.)

Section B-II/1

Guidance regarding the certification of officers in charge of a navigational watch on ships of 500 gross tonnage or more

Training

1 Every candidate for certification as officer in charge of a navigational watch should have completed a planned and structured programme of training designed to assist a prospective officer to achieve the standard of competence in accordance with table A-II/1.

2 The structure of the programme of training should be set out in a training plan which clearly expresses, for all parties involved, the objectives of each stage of training on board and ashore. It is important that the prospective officer, tutors, ships' staff and company personnel are clear about the competences which are to be achieved at the end of the programme and how they are to be achieved through a combination of education, training and practical experience on board and ashore.

3 The mandatory periods of seagoing service are of prime importance in learning the job of being a ship's officer and in achieving the overall standard of competence required. Properly planned and structured, the periods of seagoing service will enable prospective officers to acquire and practice skills and will offer opportunities for competences achieved to be demonstrated and assessed.

4 Where the seagoing service forms part of an approved training programme, the following principles should be observed:

.1 The programme of onboard training should be an integral part of the overall training plan.

.2 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.

.3 The prospective officer should be provided with a training record book* to enable a comprehensive record of practical training and experience at sea to be maintained. The 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

* The relevant IMO Model Course(s) and a similar document produced by the International Shipping Federation may be of assistance in the preparation of training record books.

towards their completion. Duly completed, the record book will provide unique evidence that a structured programme of onboard training has been completed which can be taken into account in the process of evaluating competence for the issue of a certificate.

.4 At all times, the prospective officer 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 for the duration of each voyage. 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 colleges and training institutions.

.5 The company should ensure that appropriate periods are set aside for completion of the programme of onboard training within the normal operational requirements of the ship.

Roles and responsibilities

5 The following section summarizes the roles and responsibilities of those individuals involved in organizing and conducting onboard training:

.1 The company training officer should be responsible for:

.1.1 overall administration of the programme of training;

.1.2 monitoring the progress of the prospective officer throughout; and

.1.3 issuing guidance as required and ensuring that all concerned with the training programme play their parts.

.2 The shipboard training officer should be responsible for:

.2.1 organizing the programme of practical training at sea;

.2.2 ensuring, in a supervisory capacity, that the training record book is properly maintained and that all other requirements are fulfilled; and

.2.3 making sure, so far as is practicable, that the time the prospective officer spends on board is as useful as possible in terms of training and experience, and is consistent with the objectives of the training programme, the progress of training and the operational constraints of the ship.

.3 The master's responsibilities should be to:

.3.1 provide the link between the shipboard training officer and the company training officer ashore;

.3.2 fulfil the role of continuity if the shipboard training officer is relieved during the voyage; and

.3.3 ensure that all concerned are effectively carrying out the onboard training programme.

.4 The prospective officer's responsibilities should be to:

.4.1 follow diligently the programme of training as laid down;

.4.2 make the most of the opportunities presented, be they in or outside working hours; and

.4.3 keep the training record book up to date and ensure that it is available at all times for scrutiny.

Induction

6 At the beginning of the programme and at the start of each voyage on a different ship, prospective officers should be given full information and guidance as to what is expected of them and how the training programme is to be organized. Induction presents the opportunity to brief prospective officers about important aspects of the tasks they will be undertaking, with particular regard to safe working practices and protection of the marine environment.

Shipboard programme of training

7 The training record book should contain, amongst other things, a number of training tasks or duties which should be undertaken as part of the approved programme of onboard training. Such tasks and duties should relate to at least the following areas:

.1 steering systems;

.2 general seamanship;

.3 mooring, anchoring and port operations;

.4 life-saving and fire-fighting appliances;

.5 systems and equipment;

.6 cargo work;

.7 bridge work and watchkeeping; and

.8 engine-room familiarization.

8 It is extremely important that the prospective officer is given adequate opportunity for supervised bridge watchkeeping experience, particularly in the later stages of the onboard training programme.

9 The performance of the prospective officers in each of the tasks and duties itemized in the training record book should be initialled by a qualified officer when, in the opinion of the officer concerned, a prospective officer has achieved a satisfactory standard of proficiency. It is important to appreciate that a prospective officer may need to demonstrate ability on several occasions before a qualified officer is confident that a satisfactory standard has been achieved.

Monitoring and reviewing

10 Guidance and reviewing are essential to ensure that prospective officers are fully aware of the progress they are making and to enable them to join in decisions about their future programme. To be effective, reviews should be linked to information gained through the training record book and other sources as appropriate. The training record book should be scrutinized and endorsed formally by the master and the shipboard training officer at the beginning, during and at the end of each voyage. The training record book should also be examined and endorsed by the company training officer between voyages.

Assessment of abilities and skills in navigational watchkeeping

11 A candidate for certification who is required to have received special training and assessment of abilities and skills in navigational watchkeeping duties should be required to provide evidence, through demonstration either on a simulator or on board ship as part of an approved programme of shipboard training, that the skills and ability to perform as officer in charge of a navigational watch in at least the following areas have been acquired, namely to:

- **.1** prepare for and conduct a passage, including:
  - **.1.1** interpreting and applying information obtained from charts;
  - **.1.2** fixing position in coastal waters;
  - **.1.3** applying basic information obtained from tide tables and other nautical publications;
  - **.1.4** checking and operating bridge equipment;
  - **.1.5** checking magnetic and gyro-compasses;
  - **.1.6** assessing available meteorological information;
  - **.1.7** using celestial bodies to fix position;
  - **.1.8** determining the compass error by celestial and terrestrial means; and
  - **.1.9** performing calculations for sailings of up to 24 hours;
- **.2** operate and apply information obtained from electronic navigation systems;
- **.3** operate radar, ARPA and ECDIS and apply radar information for navigation and collision avoidance;
- **.4** operate propulsion and steering systems to control heading and speed;
- **.5** implement navigational watch routines and procedures;
- **.6** implement the manoeuvres required for rescue of persons overboard;

.7 initiate action to be taken in the event of an imminent emergency situation (e.g., fire, collision, stranding) and action in the immediate aftermath of an emergency;

.8 initiate action to be taken in event of malfunction or failure of major items of equipment or plant (e.g., steering gear, power, navigation systems);

.9 conduct radiocommunications and visual and sound signalling in normal and emergency situations; and

.10 monitor and operate safety and alarm systems, including internal communications.

12 Assessment of abilities and skills in navigational watchkeeping should:

.1 be made against the criteria for evaluating competence for the function of navigation set out in table A-II/1;

.2 ensure that the candidate performs navigational watchkeeping duties in accordance with the Principles to be observed in keeping a safe navigational watch (section A-VIII/2, part 4-1) and the Guidance on keeping a navigational watch (section B-VIII/2, part 4-1).

Evaluation of competence

13 The standard of competence to be achieved for certification as officer in charge of a navigational watch is set out in table A-II/1. The standard specifies the knowledge and skill required and the application of that knowledge and skill to the standard of performance required on board ship.

14 Scope of knowledge is implicit in the concept of competence. Assessment of competence should, therefore, encompass more than the immediate technical requirements of the job, the skills and tasks to be performed, and should reflect the broader aspects needed to meet the full expectations of competent performance as a ship's officer. This includes relevant knowledge, theory, principles and cognitive skills which, to varying degrees, underpin all levels of competence. It also encompasses proficiency in what to do, how and when to do it, and why it should be done. Properly applied, this will help to ensure that a candidate can:

.1 work competently in different ships and across a range of circumstances;

.2 anticipate, prepare for and deal with contingencies; and

.3 adapt to new and changing requirements.

15 The criteria for evaluating competence (column 4 of table A-II/1) identify, primarily in outcome terms, the essential aspects of competent performance. They are expressed so that assessment of a candidate's performance can be made against them and should be adequately documented in the training record book.

16 Evaluation of competence is the process of:

.1 collecting sufficient valid and reliable evidence about the candidate's knowledge, understanding and proficiency to accomplish the tasks, duties and responsibilities listed in column 1 of table A-II/1; and

.2 judging that evidence against the criteria specified in the standard.

17 The arrangements for evaluating competence should be designed to take account of different methods of assessment which can provide different types of evidence about candidates' competence, e.g.:

.1 direct observation of work activities (including seagoing service);

.2 skills/proficiency/competency tests;

.3 projects and assignments;

.4 evidence from previous experience; and

.5 written, oral and computer-based questioning techniques[*].

18 One or more of the first four methods listed should almost invariably be used to provide evidence of ability, in addition to appropriate questioning techniques to provide evidence of supporting knowledge and understanding.

Training in celestial navigation

19 The following areas summarize the recommended training in celestial navigation:

.1 correctly adjust sextant for adjustable errors;

.2 determine corrected reading of the sextant altitude of celestial bodies;

.3 accurate sight reduction computation, using a preferred method;

.4 calculate the time of meridian altitude of the sun;

.5 calculate latitude by Polaris or by meridian altitude of the sun;

.6 accurate plotting of position line(s) and position fixing;

.7 determine time of visible rising/setting sun by a preferred method;

.8 identify and select the most suitable celestial bodies in the twilight period;

.9 determine compass error by azimuth or by amplitude, using a preferred method;

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

.10 nautical astronomy as required to support the required competence in paragraphs 19.1 to 19.9 above.

20 Training in celestial navigation may include the use of electronic nautical almanac and celestial navigation calculation software.

Chapter VIII
Guidance regarding watchkeeping

Section B-VIII/2
Guidance regarding watchkeeping arrangements and principles to be observed

1 The following operational guidance should be taken into account by companies, masters and watchkeeping officers.

* * * * *

Part 4 – Guidance on watchkeeping at sea

Part 4-1 – Guidance on keeping a navigational watch

Introduction

2 Particular guidance may be necessary for special types of ships as well as for ships carrying hazardous, dangerous, toxic or highly flammable cargoes. The master should provide this operational guidance as appropriate.

3 It is essential that officers in charge of the navigational watch appreciate that the efficient performance of their duties is necessary in the interests of the safety of life, security and property at sea and of preventing pollution of the marine environment.

Anchor watch

4 The master of every ship at an unsheltered anchorage, at an open roadstead or any other virtually “at sea” conditions in accordance with chapter VIII, section A-VIII/2, part 4-1, paragraph 51 of the STCW Code, should ensure that watchkeeping arrangements are adequate for maintaining a safe watch at all times. A deck officer should at all times maintain responsibility for a safe anchor watch.

5 In determining the watchkeeping arrangements, and commensurate with maintaining the ship’s safety and security and the protection of the marine environment, the master should take into account all pertinent circumstances and conditions such as:

.1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means;

.2 ship-to-ship and ship-to-shore communication requirements;

.3 the prevailing weather, sea, ice and current conditions;

.4 the need to continuously monitor the ship's position;

.5 the nature, size and characteristics of anchorage;

.6 traffic conditions;

.7 situations which might affect the security of the ship;

.8 loading and discharging operations;

.9 the designation of stand-by crew members; and

.10 the procedure to alert the master and maintain engine readiness.