



IMO

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III



〔仮訳〕
海上安全委員会への報告
第 3 卷

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I 部

海上安全委員会への報告

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第 5 章

第 6 章

第 7 章

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附属書 4

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第V章

特定の種類の船舶の乗組員に対する特別な訓練要件に関する指針

A-V/1-1 節

石油及びケミカル・タンカーの船長、職員及び部員の 訓練及び能力に関する最小限の要件

能力基準

1 石油及びケミカル・タンカーの荷役作業の基本訓練における資格証明を得ようとする者は、次のことを要求される。

- .1 表 A-V/1-1-1 第 1 欄に掲げる業務、任務及び責任を遂行する能力を証明すること、及び
- .2 以下のことを達成したことを証明すること
 - .2.1 表 A-V/1-1-1 第 2 欄に掲げる最小限の知識、理解及び技能
 - .2.2 表 A-V/1-1-1 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づいた、要求される能力水準

2 石油タンカーの荷役作業の上級訓練における資格証明を得ようとする者は、次のことを要求される：

- .1 表 A-V/1-1-2 第 1 欄に掲げる業務、任務及び責任を遂行する能力を証明すること、及び
- .2 以下のことを達成したことを証明すること
 - .2.1 表 A-V/1-1-2 第 2 欄に掲げる最小限の知識、理解及び技能
 - .2.2 表 A-V/1-1-2 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づいた、要求される能力水準

3 ケミカル・タンカーの荷役作業の上級訓練における資格証明を得ようとする者は、次のことを要求される。

- .1 表 A-V/1-1-3 第 1 欄に掲げる業務、任務及び責任を遂行する能力を証明すること、及び
- .2 以下のことを達成したことを証明すること
 - .2.1 表 A-V/1-1-3 第 2 欄に掲げる最小限の知識、理解及び技能

.2.2 表 A-V/1-1-3 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づいた、要求される能力水準

表 A-V/1-1-1

石油及びケミカル・タンカーの荷役作業の基本訓練における最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
石油及びケミカル・タンカーの安全な荷役作業に資すること	<p>タンカーに関する基礎知識：</p> <p>.1 石油及びケミカル・タンカーの種類</p> <p>.2 一般配置と構造</p> <p>荷役作業に関する基礎知識：</p> <p>.1 配管系統及びバルブ</p> <p>.2 カーゴ・ポンプ</p> <p>.3 積み込み及び荷揚げ</p> <p>.4 タンク清浄、ガス・フリー及び不活性化</p> <p>石油及びケミカルの物理特性に関する基礎知識：</p> <p>.1 蒸気圧・温度の関係を含む圧力と温度</p> <p>.2 静電荷発生の種類</p> <p>.3 化学記号</p> <p>タンカーの安全文化と安全管理</p>	<p>試験及び次の一以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>責任区域内における連絡が明瞭かつ効果的であること</p> <p>作業の安全を確保するため、荷役作業が一般に受け入れられている原則及び手順に基づいていること</p>
危険防止の措置を講ずること	<p>次の事項を含む、タンカー作業に関する危険の基礎知識：</p> <p>.1 健康上の危険</p> <p>.2 環境に対する危険</p> <p>.3 反応性の危険</p> <p>.4 腐食の危険</p> <p>.5 爆発及び引火の危険</p> <p>.6 静電気の危険を含む発火の原因</p> <p>.7 毒性の危険</p> <p>.8 蒸気漏れと曇り</p>	<p>試験及び次の一以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p>	<p>化学物質等安全データ・シート（MSDS）に基づき、当該貨物に関連した船舶及び要員に対する危険を正確に特定し、確立された手順に基づいて適切な措置を講ずること</p> <p>危険な状況の特定及び危険意識を持つための措置が、適切な慣行に沿って確立された手順に適合すること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
危険防止の措置を講ずること（続き）	<p>危険防止の基礎知識：</p> <ol style="list-style-type: none"> .1 不活性化、水封じ、乾燥剤、及び監視技術 .2 静電気防止対策 .3 通風 .4 積み分け .5 荷役禁止 .6 貨物の適合性の重要性 .7 換気調節 .8 ガス試験 <p>化学物質等安全データ・シート（MSDS）に関する情報の理解</p>	.4 承認された訓練プログラム	
職業上の健康と安全のための措置と対策の適用	<p>ガス測定機器及び類似機器の機能と適正な使用</p> <p>次を含む安全機器と保護装置の適正使用</p> <ol style="list-style-type: none"> .1 呼吸具及びタンク脱出装置 .2 防護服及び保護具 .3 蘇生具 .4 救助及び脱出設備 <p>次の事柄を含む、法的及び海事業界の指針に基づいた安全作業慣行と手順、並びに石油及びケミカル・タンカーに関連した船内における個々の安全に関する知識：</p> <ol style="list-style-type: none"> .1 閉鎖区画に進入する際にとるべき予防措置 .2 修理・保守作業の前及び作業中にとるべき予防措置 	<p>試験及び次の一以上から得られた証拠による評価</p> <ol style="list-style-type: none"> .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム 	<p>閉鎖区画への立入手順が遵守されること</p> <p>人員及び船舶を保護するための手順と安全作業慣行が常に遵守されていること</p> <p>適切な安全装置・保護具が常に正しく使用されていること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
職業上の健康と安全のための措置と対策の適用（続き）	<p>.3 高温及び低温作業のための安全策</p> <p>.4 電気的な安全性</p> <p>.5 船上・陸上安全チェックリスト</p> <p>化学物質等安全データ・シート（MSDS）に準拠した応急手当の基礎知識</p>		<p>応急手当における「すべきこと」「すべきでないこと」</p>
消火作業の実施	<p>タンカー火災への対応体制及び採るべき措置</p> <p>船倉内での危険・有毒な流体の荷役及び輸送に関連した火災の危険</p> <p>石油及び化学物質火災の消火に用いられる消火剤</p> <p>固定式泡消火装置の操作</p> <p>携帯式泡消火装置の操作</p> <p>粉末薬剤消火装置の操作</p> <p>消火作業に関連した流出物の拡散防止</p>	<p>極めて現実的な訓練条件（例：模擬船内条件）の下で実施される実際的な実習及び教習。これらについては、実施可能である場合は必ず暗闇の状態でも行うこと</p>	<p>船内火災認識についての初期行動及びその後の行動が、確立された慣行と手順に適合していること</p> <p>人員点呼信号を確認するためにとられる措置が当該の非常事態に対して適切であり、確立された手順に適合していること</p> <p>服装、装備が消火作業に適していること</p> <p>個々の措置を行うタイミングと順番が当面する状況・条件に対して適切であること</p> <p>消火が適切な手順、技術及び消火剤を用いて達成されること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
非常事態への対応	非常時遮断を含む非常事態対応手順に関する基礎知識	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	当該非常事態の種類と影響度が迅速に特定され、採られる対応措置が非常事態対応手順と非常配置表に適合していること
石油又はケミカルの流出による海洋環境汚染防止のための予防措置の実施	人命及び海洋生物に対する石油及びケミカルによる汚染の影響に関する基礎知識 汚染防止のための船内手続に関する基礎知識 次の必要事項を含む、流出が発生した場合にとるべき対策に関する基礎知識 .1 当該情報を責任者に報告すること .2 流出の拡散防止の船内手続の実行を支援すること	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	海洋環境保護のための手順が常に遵守されていること

表 A-V/1-1-2

石油タンカーの荷役作業の上級訓練における最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力	<p>石油タンカーの設計と特性</p> <p>以下を含む石油タンカーの設計、システム及び設備：</p> <ol style="list-style-type: none"> .1 一般配置と構造 .2 ポンプ配置及び設備 .3 タンク配置、パイプラインシステム及びタンク通気設備 .4 計測装置及び警報 .5 カーゴ過熱装置 .6 タンク清浄、ガス抜き及び不活性化システム .7 バラスト装置 .8 カーゴ・エリア通気及び宿泊施設換気 .9 スロップ・タンク設備 .10 蒸気回収装置 .11 カーゴ関連の電気・電子制御システム .12 油排出監視装置 (ODME) を含む環境保護設備 .13 タンク塗装 .14 タンクの温度、圧力制御装置 .15 消火設備 <p>カーゴ・ポンプの種類とその安全な操作を含む、ポンプの理論と特性に関する知識</p> <p>タンカーの安全文化と安全管理システムの実施についての技能</p>	<p>試験及び次の一以上から得られた証拠による評価</p> <ol style="list-style-type: none"> .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム 	<p>意思疎通が明瞭で分かり易く、良好に行われること</p> <p>石油タンカーの設計、システム及び設備を考慮しつつ、荷役作業が安全に実施されること</p> <p>作業の安全と海洋環境の汚染防止を確保するために一般に受け入れられている原則及び手順に基づいて荷役作業が立案され、危険が管理され、作業が実施されること</p> <p>荷役関連手続違反の可能性が直ちに特定され、是正されること</p> <p>積み込み、積付け及び荷揚げを適正に行うことにより、安定及び応力条件が常に安全限度内にあるよう確保すること</p> <p>採られた措置及び手順が正しく適用され、適切な船内貨物関連設備が適正に使用されること</p> <p>監視及びガス検知装置の校正と使用が、作業慣行と手順に適合していること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力（続き）	<p>非常遮断を含む安全システムの監視に関する知識と理解</p> <p>貨物の積込み、荷揚げ、管理及び取扱い</p> <p>貨物の測定と計算を行う能力</p> <p>ばら積み流体貨物のトリム、安定及び構造上の保全に対する影響に関する知識</p> <p>下記を含む石油貨物関連作業に関する知識と理解：</p> <ol style="list-style-type: none"> .1 積込み・荷揚げ計画 .2 バラスト注排水作業 .3 タンク清浄作業 .4 不活性化 .5 ガス・フリー .6 船舶間直接移送 .7 ロード・オン・トップ .8 原油洗浄 <p>貨物関連作業計画、手順、チェックリストの策定と適用</p> <p>監視、ガス検知システム、機器及び設備を校正し使用する能力</p> <p>貨物に関連した責任を持つ要員を管理し監督する能力</p>		<p>あらゆる警報が直ちに検知され、確立された非常事態手順に基づいて措置がとられるための、監視手順及び安全システム</p> <p>要員に任務が割当てられ、各人に見合っており、かつ安全作業慣行に基づいた作業手順及び基準について知らされること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
石油貨物の物理的、化学的特性について精通していること	石油貨物の物理的、化学的特性の知識と理解 化学物質等安全データ・シート (MSDS) に含まれている情報の理解	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	石油貨物及び関連するガスの特性・特徴、それらが安全、環境及び船舶運航に及ぼす影響を特定するための情報源の効果的な使用
危険防止のための措置を講じること	次の事項を含む、石油タンカーの荷役作業に関連した危険と防止対策に関する知識と理解 .1 毒性 .2 引火性及び爆発 .3 健康への危険 .4 不活性ガスの構成 .5 静電気の危険 関連ルール・規則の違反に伴う危険に関する知識と理解	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	石油タンカー荷役作業との関連で、船舶と要員に対して当該の貨物が与える危険が正確に特定され、適正な防止対策が講じられること
職業上の健康と安全のための措置の適用	石油タンカーに関連する危険評価及び船内における要員の安全を含む、安全作業慣行に関する知識と理解 .1 各種の呼吸具の正しい使用を含む、閉鎖区画への進入に際して採るべき予防措置	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴	要員及び船舶を保護するための手順が常に遵守されていること 安全作業慣行が遵守され、かつ適切な安全装置・保護具が常に正しく使用されていること

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
職業上の健康と安全のための措置の適用（続き）	<p>.2 修理・保守作業の前及び最中にとるべき予防措置</p> <p>.3 高温、低温作業ための予防措置</p> <p>.4 電氣的安全のための予防措置</p> <p>.5 適切な個人用保護具（PPE）の着用</p>	<p>.2 承認された練習船履歴での経験</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>作業慣行が法的要件、実施規則、就労許可及び環境への配慮に基づいていること</p> <p>呼吸具の正しい使用</p> <p>閉鎖区画への立入手続が遵守されていること</p>
非常事態への対応	<p>次の事項を含む石油タンカー非常事態への対応手順に関する知識と理解：</p> <p>.1 船舶非常事態対応計画</p> <p>.2 荷役作業の非常停止</p> <p>.3 貨物にとって緊要なシステム又は業務の機能停止時にとるべき措置</p> <p>.4 石油タンカー上の消火作業</p> <p>.5 閉鎖区画での救助</p> <p>.6 化学物質等安全データシート（MSDS）の使用</p> <p>衝突、座礁又は流出事故の場合にとるべき措置</p> <p>石油タンカー上での応急手当に関する知識</p>	<p>試験及び次の一以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>当該非常事態の種類と影響度が迅速に特定され、とられる対応措置が確立された非常事態対応手順と非常配置表に適合していること</p> <p>報告を行い、船内要員に通報する優先順位、レベル及び時間が当該の非常事態に対して適切であり、問題の緊急性を反映していること</p> <p>退避及び非常停止・遮断手順が当該の非常事態に対して適切であり、迅速に実施されること</p> <p>医療面での緊急事態の特定と採られる措置が現在承認されている応急手当慣行と国際的指針に適合していること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
海洋環境汚染防止のため措置を講ずること	大気と環境の汚染を防止するための手順の理解	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	作業が環境汚染防止のため一般に受け入れられた原則及び手順に基づいていること
法的要件遵守の監視及び管理	改訂「船舶による汚染の防止のための国際条約」(MARPOL)の関連規定、その他関連するIMO文書、通常適用される業界指針及び港湾規則に関する知識と理解	試験及び次の一以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	貨物の取扱いが、関連するIMO文書及び確立された業界基準及び安全作業規則に適合していること

表 A-V/1-1-3

ケミカル・タンカーの荷役作業の上級訓練における最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力	<p>ケミカル・タンカーの設計と特性</p> <p>以下を含むケミカル・タンカーの設計、システム及び設備：</p> <ol style="list-style-type: none"> .1 一般配置と構造 .2 ポンプ配置及び設備 .3 タンクの構造及び配置 .4 パイプライン及び排水装置 .5 タンク及びカーゴ・パイプラインの圧力・温度制御システム及び警報装置 .6 計測制御装置及び警報 .7 ガス検知装置 .8 貨物加熱・冷却装置 .9 タンク清浄装置 .10 カーゴ・タンク環境制御装置 .11 バラスト装置 .12 カーゴ・エリア通気及び宿泊設備換気 .13 蒸気回収装置 .14 消火設備 	<p>試験及び次の一つ以上から得られた証拠による評価：</p> <ol style="list-style-type: none"> .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム 	<p>連絡が明確で分かり易く、良好に行われること</p> <p>ケミカル・タンカーの設計、システム及び設備を考慮しつつ、荷役作業が安全に実施されること</p> <p>作業の安全と海洋環境の汚染防止を確保するために一般に受け入れられている原則及び手順に基づいて荷役作業が立案され、危険が管理され、作業が実施されること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力（続き）	<p>.15 タンク、パイプライン及び艀装の材料及びコーティング</p> <p>.16 スロップ管理</p> <p>カーゴ・ポンプの種類とその安全な操作を含む、ポンプの理論と特徴に関する知識</p> <p>タンカーの安全文化と安全管理システム実施における技能</p> <p>非常遮断装置を含む安全システムの監視に関する知識と理解</p> <p>貨物の積込み、荷揚げ、管理及び取扱い</p> <p>貨物の測定と計算を行う能力</p> <p>ばら積み流体貨物のトリム、安定及び構造上の保全に対する影響に関する知識</p> <p>下記を含むケミカル・貨物関連作業に関する知識と理解：</p> <p>.1 積込み・荷揚げ計画</p> <p>.2 バラスト注排水作業</p> <p>.3 タンク清浄作業</p> <p>.4 タンク内の空気管理</p>		<p>積込み、積付け及び荷揚げを適正に行うことにより、安定及び応力条件が常に安全限度内にあるよう確保すること</p> <p>潜在的な荷役関連手続違反が直ちに特定され、是正されること</p> <p>実施措置及び手順が正しく適用され、適切な船内貨物関連設備が適正に使用されること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力(続き)	<p>.5 不活性化</p> <p>.6 ガス・フリー</p> <p>.7 船舶間直接移送</p> <p>.8 反応抑制及び安定化要件</p> <p>.9 加熱・冷却要件及び隣接貨物に対する影響</p> <p>.10 貨物の適合性及び積み分け</p> <p>.11 高粘度貨物</p> <p>.12 貨物残留物作業</p> <p>.13 作業のためのタンク内への立入</p> <p>貨物関連作業計画、手順、チェックリストの策定と適用</p> <p>監視及びガス検知システムの機器並びに設備を使用し、計測する能力</p> <p>貨物関連任務担当要員を管理・監督する能力</p>		<p>監視及びガス検知装置を使用し計測することが、安全作業慣行と手順に適合していること</p> <p>あらゆる警報を直ちに検知し、確立された非常事態手順に基づいて措置することを確保するための、監視手順及び安全システム</p> <p>人員が配置され、各人に見合った方法、かつ安全作業慣行に基づいた作業手順及び基準が知らされること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
化学薬品貨物の物理的及び化学的特性について精通していること	<p>下記を含む有毒な流体物質の物理的及び化学的特性に関する知識と理解：</p> <p>.1 化学薬品貨物の区分（腐食性、毒性、引火性、爆発性）</p> <p>.2 化学薬品群及び工業的用途</p> <p>.3 貨物の反応性</p> <p>化学物質等安全データ・シート（MSDS）に含まれている情報の理解</p>	<p>試験及び次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>有毒な流体物質及び関連ガスの特性・特徴、それらが安全、環境保護及び船舶運航に及ぼす影響を特定するための情報源の効果的な使用</p>
危険防止のための措置を講じること	<p>以下を含む、ケミカル・タンカーの荷役作業に係る危険及び管理措置に関する知識と理解：</p> <p>.1 引火性及び爆発</p> <p>.2 毒性</p> <p>.3 健康への危険</p> <p>.4 不活性ガスの構成</p> <p>.5 静電気の危険</p> <p>.6 反応性</p> <p>.7 腐食性</p> <p>.8 低沸点貨物</p> <p>.9 高濃度貨物</p>	<p>試験及び次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>ケミカル・タンカー荷役作業との関連で、船舶と要員に対して当該の貨物が与える危険が正確に特定され、適正な防止対策が講じられること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
危険防止のための措置を講じること（続き）	.10 凝固性貨物 .11 重合性貨物 関連規則への違反に伴う危険に関する知識と理解		
職業上の健康と安全のための措置の適用	ケミカル・タンカーに関連する危険評価及び船内における人員の安全を含む、安全作業慣行に関する知識と理解 .1 各種の呼吸具の正しい使用を含む、密閉区画への進入に際してとるべき予防措置 .2 修理・保守作業の前及び最中にとるべき予防措置 .3 高温、低温作業ための予防措置 .4 電氣的安全のための予防措置 .5 適切な個人用保護具（PPE）の着用	試験及び次の一つ以上から得られた証拠による評価： .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	人員及び船舶を保護するための手順が常に遵守されていること 安全作業慣行が遵守され、かつ適切な安全装置・保護具が正しく使用されていること 作業慣行が法的要件、実施規則、就労許可及び環境への配慮に基づいていること 呼吸具の正しい使用 閉鎖区画への立入手続が遵守されていること

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
非常事態への対応	<p>次の事項を含むケミカル・タンカーの非常事態対応手順に関する知識と理解：</p> <p>.1 船内非常事態対応計画</p> <p>.2 荷役作業の緊急遮断</p> <p>.3 貨物にとって緊要なシステム又は業務の機能停止時にとるべき措置</p> <p>.4 ケミカル・タンカー上の消火作業</p> <p>.5 閉鎖区画での救助</p> <p>.6 貨物の反応性</p> <p>.7 貨物の船外投棄</p> <p>.8 化学物質等安全データシート（MSDS）の使用</p> <p>衝突、座礁又は流出事故の場合にとるべき措置</p> <p>危険物事故に係る応急医療便覧（MFAG）を参照した上で、ケミカル・タンカー上の応急手当に関する知識</p>	<p>試験及び次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>当該非常事態の種類と影響度が迅速に特定され、とられる対応措置が確立された非常事態対応手順と非常配置表に適合していること</p> <p>報告を行い、船内要員に通報する優先順位、レベル及び時間が当該の非常事態に対して適切であり、問題の緊急性を反映していること</p> <p>退避及び非常停止・遮断手順が当該の非常事態に対して適切であり、迅速に実施されること</p> <p>医療面での緊急事態の特定と、とられる措置が現在承認されている応急手当慣行と国際的指針に適合していること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
環境汚染を防止のための措置を講ずること	大気と環境の汚染を防止するための手順の理解	試験及び次の一つ以上から得られた証拠による評価： .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	作業が環境汚染防止のため一般に受け入れられている原則及び手順に基づいていること
法的要件遵守の監視及び管理	「船舶による汚染の防止のための国際条約」(MARPOL)の関連規定、その他関連するIMO 文書、通常適用される業界指針及び港湾規則に関する知識と理解 IBC コード及び関連文書を使用する技能	試験及び次の一つ以上から得られた証拠による評価： .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	貨物の取扱いが、関連するIMO 文書及び確立された業界基準及び安全作業規則に適合していること

A-V/1-2 節

液化ガスタンカーに乗組む船長、職員及び部員の訓練及び資格のための最小限の要件

能力基準

1 液化ガスタンカーの荷役作業の基本訓練における資格証明を得ようとする者は、次のことを要求される。

- .1 表 A-V/1-2-1 第 1 欄に掲げる業務、任務及び責任を遂行する能力を証明すること、及び
- .2 以下のことを達成したことを証明すること
 - .2.1 表 A-V/1-2-1 第 2 欄に掲げる最小限の知識、理解及び技能
 - .2.2 表 A-V/1-2-1 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づいた、要求される能力水準

2 液化ガスタンカーの荷役作業の上級訓練における資格証明を得ようとする者は、次のことを要求される。

- .1 表 A-V/1-2-2 第 1 欄に掲げる業務、任務及び責任を遂行する能力を証明すること、及び
- .2 以下のことを達成したことを証明すること
 - .2.1 表 A-V/1-2-2 第 2 欄に掲げる最小限の知識、理解及び技能
 - .2.2 表 A-V/1-2-2 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づいた、要求される能力水準

表 A-V/1-2-1

液化ガスタンカーの荷役作業の基本訓練における最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
液化ガス・タンカーの安全な運航に資すること	<p>液化ガス・タンカーの設計と作業特性</p> <p>液化ガス・タンカーに関する基礎知識：</p> <p>.1 液化ガス・タンカーの種類</p> <p>.2 一般配置と構造</p> <p>荷役作業に関する基礎知識：</p> <p>.1 配管系統及びバルブ</p> <p>.2 荷役設備</p> <p>.3 積み込み、荷揚げ及び輸送中の管理</p> <p>.4 緊急遮断（ESD）装置</p> <p>.5 タンク清浄、パーキング、ガス抜き及び不活性化</p> <p>以下を含む液化ガスの物理特性に関する基礎知識：</p> <p>.1 特性と特徴</p> <p>.2 蒸気の圧力・温度の関係を含む圧力と温度</p> <p>.3 静電荷発生の種類</p> <p>.4 化学記号</p> <p>タンカーの安全文化と安全管理に関する知識と理解</p>	<p>試験及び次の一つ以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>責任区域内における連絡が明確かつ効果的であること</p> <p>作業の安全を確保するため、荷役作業が一般に受け入れられている原則及び手順に基づいていること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
危険防止のための措置を講じること	<p>以下を含む、タンカー作業に係る危険についての基礎知識：</p> <ol style="list-style-type: none"> .1 健康への危険 .2 環境への危険 .3 反応性に係る危険 .4 腐食に係る危険 .5 爆発及び引火の危険 .6 発火源 .7 静電気の危険 .8 毒性の危険 .9 蒸気漏れ及び曇り .10 極低温 .11 圧力に係る危険 <p>危険の抑止方法に関する基礎知識：</p> <ol style="list-style-type: none"> .1 不活性化、乾燥及び監視技術 .2 静電気対策 .3 通風 .4 積み分け .5 荷役禁止 .6 貨物適合性の重要性 	<p>試験及び次の一つ以上から得られた証拠による評価</p> <ol style="list-style-type: none"> .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム 	<p>化学物質等安全データ・シート（MSDS）に基づき、当該貨物に関連した船舶及び人員に対する危険を正確に特定し、確立された手順に基づいて適切な措置を講じること</p> <p>危険な状況の特定及び危険な状況を認識した際の措置が、適切な慣行に沿って確立された手順に適合すること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
危険防止のための措置を講じること（続き）	<p>.7 換気調節</p> <p>.8 ガス試験</p> <p>化学物質等安全データ・シート（MSDS）の記載情報の理解</p>		
職業上の健康と安全のための措置・対策の適用	<p>ガス測定機器及び類似機器の機能と適正な使用</p> <p>以下を含む安全設備及び保護具の適正な使用：</p> <p>.1 呼吸具及びタンク脱出装置</p> <p>.2 防護服と保護具</p> <p>.3 蘇生具</p> <p>.4 救助及び脱出設備</p> <p>次の事柄を含む、法制及び海事業界の指針に基づいた安全作業慣行と手順、並びに液化ガス・タンカーに関連した船内における個々の安全に関する基礎知識：</p> <p>.1 閉鎖区画に立入る際にとるべき予防措置</p> <p>.2 修理・保守作業の前及び作業中にとるべき予防措置</p> <p>.3 高温及び低温作業のための安全策</p> <p>.4 電氣的な安全性</p>	<p>試験及び次の一つ以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>閉鎖区画への立入手順が遵守されること</p> <p>要員及び船舶を保護するための手順と安全作業慣行が常に遵守されていること</p> <p>適切な安全装置・保護具が正しく使用されていること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
職業上の健康と安全のための措置・対策の適用（続き）	<p>5 船上・陸上安全チェックリスト</p> <p>化学物質等安全データ・シート（MSDS）を参照した上での応急手当の基礎知識</p>		<p>応急手当における「すべきこと」「すべきでないこと」</p>
消火作業の実施	<p>タンカー火災への対応体制及び採るべき措置</p> <p>ばら積み液化ガスの荷役及び輸送に関連した特殊な危険</p> <p>ガス火災の消火に用いられる消火剤</p> <p>固定式泡消火装置の操作</p> <p>携帯式泡消火器の操作</p> <p>粉末薬剤消火装置の操作</p> <p>消火作業に関連した流出物の拡散防止に関する基礎知識</p>	<p>極めて現実的な訓練条件（例：模擬船内条件）の下で実施される実際的な実習及び教習。これらについては、実施可能である場合は必ず暗闇の状態でも行うこと</p>	<p>非常事態を認識した時の初期行動及びその後の行動が、確立された慣行と手順に適合していること</p> <p>人員点呼信号を確認した時にとられる措置が、当該の非常事態に対して適切であり、確立された手順に適合していること</p> <p>服装、装備が消火作業の内容に適していること</p> <p>個々の措置を行うタイミングと順番が当面する状況・条件に対して適切であること</p> <p>消火が適切な手順、技術及び消火剤を用いて達成されること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
非常事態への対応	非常時遮断を含む非常事態対応手順に関する基礎知識	試験及び次の一つ以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	当該非常事態の種類と影響度が迅速に特定され、採られる対応措置が非常事態対応手順と非常配置表に適合していること
液化ガスの流出による環境汚染防止のための予防措置の実施	人命及び海洋生物に対する汚染の影響に関する基礎知識 汚染防止のための船内手続に関する基礎知識 次の必要性を含む、流出が発生した場合に採るべき対策に関する基礎知識： .1 当該情報を責任者に報告すること .2 流出の拡散防止の船内手続の実行を支援すること .3 脆性破壊を防止すること	試験及び次の一つ以上から得られた証拠による評価 .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム	海洋環境保護のための手順が常に遵守されていること

表 A-V/1-2-2

液化ガス・タンカーの荷役作業の上級訓練における最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力	<p>液化ガス・タンカーの設計と特徴</p> <p>以下を含む液化ガス・タンカーの設計、システム及び設備に関する知識：</p> <ol style="list-style-type: none"> .1 液化ガス・タンカーの種類と貨物タンクの構造 .2 一般配置と構造 .3 構造材及び絶縁材を含む貨物格納設備 .4 下記を含む荷役設備及び計装： <ol style="list-style-type: none"> .1 カーゴ・ポンプ及びポンプ配置 .2 カーゴ・パイプライン及びバルブ .3 膨張装置 .4 火炎遮蔽物 .5 温度監視システム .6 カーゴ・タンク・レベル測定システム .7 タンク圧力監視・制御システム .5 カーゴ温度維持システム 	<p>試験及び次の一つ以上から得られた証拠による評価</p> <ol style="list-style-type: none"> .1 承認された海上履歴 .2 承認された練習船履歴 .3 承認されたシミュレータ訓練 .4 承認された訓練プログラム 	<p>連絡が明確で分かり易く、良好に行われること</p> <p>液化ガス・タンカーの設計、システム及び設備を考慮しつつ、荷役作業が安全に実施されること</p> <p>ポンプ吸排作業が一般に受け入れられている原則及び手順に基づき、かつ貨物の種類に対応した方法で行われること</p> <p>作業の安全と海洋環境の汚染防止を確保するために一般に受け入れられている原則及び手順に基づいて荷役作業が立案され、危険が管理され、作業が実施されること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力(続き)	<p>.6 保管、発生、分配装置を含むタンク内換気調整システム(不活性ガス、窒素)</p> <p>.7 コッフアダム加熱装置</p> <p>.8 ガス検知装置</p> <p>.9 バラスト装置</p> <p>.10 ボイル・オフ・システム</p> <p>.11 再液化システム</p> <p>.12 貨物緊急遮断装置(ESD)</p> <p>.13 計量計測装置</p> <p>カーゴ・ポンプの種類とその安全な操作を含む、ポンプの理論と特徴に関する知識</p> <p>貨物の積込み、荷揚げ、管理及び取扱い</p> <p>ばら積み流体貨物のトリム、安定及び構造上の保全に対する影響に関する知識</p> <p>タンカーの安全文化と安全管理要件実施に関する技能</p>		<p>液化ガス貨物の積込み、積付け及び荷揚げを適正に行うことにより、安定及び応力条件が常に安全限度内にあるよう確保すること</p> <p>潜在的な荷役関連手続違反の可能性が直ちに特定され、是正されること</p> <p>とられた措置及び手順を正しく適用し、適切な船内設備を十分に活用すること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力（続き）	<p>以下を含む、すべての荷役作業の安全のための準備、手順及びチェックリストを適用する技能：</p> <p>.1 着岸後及び積み込み：</p> <p>.1 タンク検査</p> <p>.2 不活性化（酸素低減、露点低減）</p> <p>.3 ガス処理の終了</p> <p>.4 冷却</p> <p>.5 積み込み</p> <p>.6 バラスト排水</p> <p>.7 閉ループ・サンプリングを含むサンプリング</p> <p>.2 航路</p> <p>.1 冷却</p> <p>.2 圧力維持</p> <p>.3 ボイル・オフ</p> <p>.4 抑制</p> <p>.3 荷揚げ</p> <p>.1 荷揚げ</p> <p>.2 バラスト注水</p> <p>.3 ストリッピング・清浄装置</p> <p>.4 タンクからの液体排出装置</p> <p>.4 着岸前準備</p> <p>.1 暖機</p> <p>.2 不活性化</p> <p>.3 ガス抜き</p> <p>.5 船舶間直接移送</p>		<p>監視及びガス検知装置の計測と使用が、安全作業慣行と手順に適合していること</p> <p>あらゆる警報を直ちに検知し、確立された非常事態手順に基づいて措置を採るための監視手順及び安全システム</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
あらゆる荷役作業を安全に遂行し監視する能力(続き)	<p>以下を含む貨物の計測と計算を遂行する技能：</p> <p>.1 液相</p> <p>.2 気相</p> <p>.3 船上重量 (OBQ)</p> <p>.4 船上残重量 (ROB)</p> <p>.5 ボイル・オフ・カーゴ計算</p> <p>貨物関連任務担当要員を管理・監督する技能</p>		<p>要員に任務が割当てられ、各人に見合った方法、かつ安全作業慣行に基づいた作業手順及び基準が知られること</p>
液化ガス貨物の物理的及び化学的特性について精通していること	<p>下記を含む、基礎的な化学、物理学及びばら積み液化ガスの安全な海上輸送に関連する諸定義に関する知識と理解：</p> <p>.1 気体の化学構造</p> <p>.2 下記を含む、液化ガス(二酸化炭素を含む)とその蒸気特性と特徴：</p> <p>.1 簡単な気体の法則</p> <p>.2 物質の状態</p> <p>.3 液体及び蒸気の濃度</p> <p>.4 ガスの拡散及び混合</p> <p>.5 ガスの圧縮</p> <p>.6 ガスの再液化及び冷凍</p>	<p>試験及び次の一つ以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>液化ガスの特性・特徴、及びそれらが安全、環境保護及び船舶運航に及ぼす影響を特定するための情報源の効果的な使用</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
液化ガス貨物の物理的及び化学的特性について精通していること(続き)	<p>.7 ガスの臨界温度と圧力</p> <p>.8 引火点、爆発限界・上下限界、自然発火温度</p> <p>.9 気体の相容性、反応性及び積極的なガスの積み分け</p> <p>.10 重合</p> <p>.11 飽和蒸気圧力・基準温度</p> <p>.12 露点及び気泡温度</p> <p>.13 圧縮機の注油</p> <p>.14 水酸化合物の形成</p> <p>.3 単一液体の特性</p> <p>.4 溶液の性質と特性</p> <p>.5 熱力学単位</p> <p>.6 基礎的な熱力学の法則及び図解</p> <p>.7 物質の特性</p> <p>.8 低温の影響 - 脆性破壊</p> <p>化学物質等安全データ・シート (MSDS) に含まれる情報の理解</p>		

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
危険防止のための措置を講じること	<p>以下を含む、液化ガス・タンカー荷役作業に係る危険と防止対策に関する知識と理解：</p> <p>.1 引火性</p> <p>.2 爆発</p> <p>.3 毒性</p> <p>.4 反応性</p> <p>.5 腐食性</p> <p>.6 健康への危険</p> <p>.7 不活性ガスの構成</p> <p>.8 静電気の危険</p> <p>.9 重合性貨物</p> <p>監視・ガス検知システム、機器、装置を使用して計測する技能</p> <p>関連規則への違反に伴う危険についての知識と理解</p>	<p>試験及び次の一つ以上から得られた証拠による評価</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>液化ガス・タンカー荷役作業との関連で、船舶と人員に対して当該の貨物が与える危険が正確に特定され、適正な防止対策が講じられること</p> <p>ガス検知装置の使用がマニュアル及び適切な慣行に適合していること</p>
職業上の健康と安全のための措置の適用	<p>以下を含む、液化ガス・タンカーに関連する危険評価及び船内における人員の安全を含む、安全作業慣行に関する知識と理解：</p> <p>.1 各種呼吸具の正しい使用を含む、閉鎖区画（コンプレッサー室など）への立入に際して採るべき予防措置</p>	<p>次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p>	<p>人員及び船舶を保護するための手順が常に遵守されていること</p> <p>安全作業慣行が遵守され、かつ適切な安全・保護具が正しく使用されていること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
職業上の健康と安全のための措置の適用（続き）	<p>.2 ポンプ系、配管系、電気及び制御系へ影響する作業を含む、修理・保守作業の前及び最中にとるべき予防措置</p> <p>.3 高温、低温作業のための予防措置</p> <p>.4 電氣的安全のための予防措置</p> <p>.5 適切な個人用保護具（PPE）の着用</p> <p>.6 霜焼け及び凍傷への予防措置</p> <p>.7 個人用毒性監視装備の適切な使用</p>	<p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>作業慣行が法的要件、実施規則、就労許可及び環境への配慮に基づいていること</p> <p>呼吸具の正しい使用</p>
非常事態への対応	<p>次の事項を含む液化ガス・タンカーの非常事態対応手順に関する知識と理解：</p> <p>.1 船内非常事態対応計画</p> <p>.2 荷役作業緊急遮断手順</p> <p>.3 緊急カーゴ・バルブ操作</p>	<p>次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p>	<p>当該非常事態の種類と影響度が迅速に特定され、採られる対応措置が確立された非常事態対応手順と非常配置表に適合していること</p> <p>報告を行い、船内要員に通報する優先順位、レベル及び時間が当該の非常事態に対して適切であり、問題の緊急性を反映していること</p>

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
非常事態への対応（続き）	<p>.4 荷役作業にとって緊要なシステム又は業務の機能停止に際してとるべき措置</p> <p>.5 液化ガス・タンカー上の消火作業</p> <p>.6 貨物の投荷</p> <p>.7 閉鎖区画での救助</p> <p>衝突、座礁、流出事故又は船舶が有毒又は引火性の蒸気に包まれた場合にとるべき措置</p> <p>危険物事故に係る応急医療便覧（MFAG）を参照した上での、液化ガス・タンカー上の応急手当及び解毒剤に関する知識</p>	<p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>退避及び非常停止・遮断が当該の非常事態に対して適切であり、迅速に実施されること</p> <p>医療面での緊急事態の特定と採られる措置が現在承認されている応急処置慣行と国際的指針に適合していること</p>
環境汚染防止のための措置を講じること	環境の汚染を防止するための手順の理解	<p>次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	作業が環境汚染防止のため一般に受け入れられた原則及び手順に基づいて行われること

能力	知識・理解及び技能	能力の証明方法	能力評価の基準
法的要件遵守の監視及び管理	<p>「船舶による汚染の防止のための国際条約」(MARPOL)の関連規定、その他関連するIMO文書、通常適用される業界指針及び港湾規則に関する知識と理解</p> <p>IBC及びIGCコード及び関連文書を使用する技能</p>	<p>次の一つ以上から得られた証拠による評価：</p> <p>.1 承認された海上履歴</p> <p>.2 承認された練習船履歴</p> <p>.3 承認されたシミュレータ訓練</p> <p>.4 承認された訓練プログラム</p>	<p>液化ガス貨物の取扱いが、関連するIMO文書及び確立された業界基準及び安全作業規則に適合していること</p>

A-V/2 節

旅客船の船長、職員、部員及びその他の者の訓練及び能力のための最小限の要件

群衆管理訓練

1 (省略)

旅客区域において直接旅客に関連する業務に従事する者に対する安全に関する訓練

2 第 V/2 規則 5 で要求される追加的安全に関する訓練は少なくとも次に規定する能力の達成を確保しなければならない。

意志の疎通

.1 (省略)

救命設備

.2 (省略)

乗船手順

.3 身障者及び助けを必要とする者に対する配慮を伴った旅客の乗降

危機管理及び人間行動訓練

3 船長、機関長、一等航海士、一等機関士及び非常時において旅客の安全に責任を有するすべての者は、

.1 表 A-V/2 に書かれているように、その職位、職務及び責任に従って、第 V/2 規則 6 項により求められる承認された危機管理及び人間行動訓練をつつがなく修了しなければならない。

.2 (省略)

旅客の安全、貨物の安全及び船隊の保全に関する訓練

4 ロールオン・ロールオフ旅客船に乗組む船長、一等航海士、機関長、一等機関士及び旅客の乗降、貨物の積込み、荷揚げ又は保全及び船体の開口部の閉鎖について直接的な責任を割当てられた者に対して第 V/2 規則 7 で要求される旅客の安全、貨物の安全及び船体の保全に関する訓練は、次に規定する業務と責任に対する妥当な能力の達成を少なくとも確保しなければならない。

.1～.6 (省略)

表 A-V/2

危機管理及び人間行動についての最小限の能力基準の詳細

(省略)

第VI章

非常事態、職業上の安全、保安、医療及び生存に関する職務細目に関する基準

A-VI/1 節

すべての船員に対する安全に関する精通するための訓練並びに
基本的な訓練及び教育のための最小限の要件

安全に関して精通するための訓練

1 (省略)

基本訓練

2 (省略)

.1 下記の内容を含む適切な承認された基本訓練又は教育を受けること。

.1.1～.1.4 (省略)

.2 表 A-VI/1-1、表 A-VI/1-2、表 A-VI/1-3 及び表 A-VI/1-4 第 1 欄に列挙する業務、
任務及び責任を遂行するために要求される能力基準を達成したことを下記に
よって証明すること。

.2.1～.2.2 (省略)

3 上記第 2 項に基づき基礎訓練の資格を得た船員は、表 A-VI/1-1 及び表 A-VI/1-2
第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力基準を維持してい
ることを 5 年毎に証明しなければならない。

4 締約国は、以下の分野において要求される能力基準を維持するための船内訓練及
び履歴を受け入れることができる。

.1 表 A-VI/1-1 に記載の個人的生存技術

.1.1 救命胴衣の着用

.1.2 救命胴衣を着用して船舶から救命艇に乗組むこと

.1.3 生存の可能性を向上させるために救命艇の上で初期行動を行うこと

.1.4 救命艇の海錨又はシーアンカーの使用

.1.5 救命用端艇の備品の操作

.1.6 無線設備を含む位置を知らせる装置の操作

.2 表 A-VI/1-2 に記載の防火及び消火活動

.2.1 自蔵式呼吸具の使用

.2.2 煙の充満した区画において呼吸具を装着し、船上で承認された発煙器を用いての救助の実施

免除規定

- 5 主管庁は、総トン数 500 トン以上若しくは国際航海に従事する旅客船又はタンカー以外の船舶については、この基本訓練のすべての要件をいずれかの船舶に適用することが当該いずれかの船舶の大きさ及び長さ、航海の状況に照らして合理的又は実質的でないと考えられる場合には、船内の人員、船舶及び財産の安全と海洋環境の保護に留意した上、当該いずれかの船舶の船員に対し、適切と認める範囲内で要件の一部を免除できる。

表 A-VI/1-1～表 A-VI/1-3

(省略)

表 A-VI/1-4

個々の安全及び社会的責任における最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
非常時の手順の遵守ができること	<p>衝突、火災、沈没等発生する可能性のある非常事態の種類</p> <p>不慮の事故に対応するための船内非常配置計画に関する知識</p> <p>非常信号と非常配置表中の乗組員に割当てられた特定の任務：非常部署、個々の安全設備の正しい使用</p> <p>火災、衝突、沈没及び船内への浸透を含む潜在する非常事態の発見に関してとるべき措置</p> <p>非常警報信号を聞いた際にとるべき措置</p> <p>訓練及び操練の必要性</p> <p>避難路並びに船内通信及び警報装置に関する知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	<p>非常事態に気づいた時の最初の行動が、確立された非常対応手順に従っていること</p> <p>警報を発せられた時の情報が、迅速、正確、完全かつ明確であること</p>

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
海洋環境の汚染防止のための予防措置がとれること	<p>海運が海洋環境に与える影響及び運航上の理由又は偶然で起こる汚染が海洋環境に対して及ぼす結果に関する基礎知識</p> <p>基本的な環境保護のための手順</p> <p>海洋環境の複雑性及び多様性に関する基礎知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	海洋環境保護のための計画された組織的手順が、常に遵守されること
安全な作業の実施を遵守すること	<p>常に忠実に完全作業を実施することの重要性</p> <p>船内の潜在的な危険に対して有用な安全と防護装置</p> <p>閉鎖区画に入る際にとるべき予防措置</p> <p>事故防止と職業上の健康に関する国際的対策の習熟(注)</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	安全作業の実施が遵守され、かつ適切な安全及び防護設備が常に正しく使用されること
船内の効果的なコミュニケーションに貢献すること	<p>船内における個人間及びチーム間の効果的なコミュニケーションについての原則及びそれらを妨げる障壁についての理解</p> <p>効果的な意思疎通を確立、維持する能力</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	連絡が、常に明確かつ有効であること

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
船内の良好な人間関係に貢献すること	<p>船内における良好な人間関係及び作業環境の維持の重要性</p> <p>争いごとの解決を含む共同作業の基本的な原則及び慣行</p> <p>社会的責任</p> <p>雇用状態</p> <p>個人の権利と義務</p> <p>薬物及びアルコールの乱用の危険</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	期待される作業と行動の基準を常に遵守すること
疲労防止を理解し必要な措置をとること	<p>必要な休息を確保することの重要性</p> <p>睡眠、スケジュール及び24時間周期の体内リズムが疲労に対してもつ効果</p> <p>物理的なストレス因子が船員に与える影響</p> <p>船の内外にある環境的ストレス因子の効果と船員に与える影響</p> <p>スケジュール変更が船員の疲労に与える影響</p>	承認された教育から又は承認された課程の受講中に得られた証拠による評価	疲労管理の慣行が遵守され、常に適切な措置がとられていること

A-VI/2 節

救命艇及び救命いかだ並びに救助艇及び高速救助艇に関する 技能証明書の発給のための最小限の要件

救命艇及び救命いかだ並びに救助艇（高速救助艇を除く。）に関する技能

能力基準

1～3 （省略）

4 資格証明を得ようとする者は、次の事項を通じて要求される能力基準を達成したことを証明しなければならない。

5 上記第 4 項に基づき高速救助艇以外の救命艇及び救助艇に関する資格を得た船員は、表 A-VI/2-1 第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力基準を維持していることを 5 年毎に証明しなければならない。

6 締約国は、以下の分野において要求される表 A-VI/2-1 に掲げる能力基準を維持するための船内訓練及び履歴を受け入れることができる。

- .1 着水途中及び着水後の救命艇又は救助艇に対する監督責任
 - .1.1 救助艇に付いている収容可能人員数に関する表示の解釈
 - .1.2 救助艇の着水と乗込み、本船の後片付け及び救助艇から降りる者の扱いと下船に対して的確な指示を出すこと
 - .1.3 救助艇を準備し安全に着水させ、本船の船側を迅速に片づけること
 - .1.4 救命艇及び救助艇の安全な回収
- .2 退船後の生存者及び救命艇の管理
 - .2.1 救命艇をこぎ、コンパスを使って操艇すること
 - .2.2 信号火炎を除く、救命艇に備えつけの個々の装具を使用すること
 - .2.3 位置探知を助けるための索具の使用
- .3 無線及び信号装置を含む位置探知装置の使用
 - .3.1 救命艇用の携帯無線器の使用
- .4 生存者への応急手当

高速救助艇に関する技能

能力基準

7～9 (省略)

10 資格証明を得ようとする者は、次の事項を通じて要求される能力基準を達成したことを証明しなければならない。

11 上記第 10 項に基づき高速救助艇に関する資格を得た船員は、表 A-VI/2-2 第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力基準を維持していることを 5 年毎に証明しなければならない。

12 締約国は、以下の分野において要求される表 A-VI/2-2 に掲げる能力基準を維持するための船内訓練及び履歴を受け入れることができる。

- .1 着水途中及び着水後の高速救助艇に対する監督責任
 - .1.1 高速救助艇の安全な着水及び回収
 - .1.2 当面する気象・海象条件の下での高速救助艇の操船
 - .1.3 高速救助艇とヘリコプター及び船舶との間の連絡に無線及び信号装置を使うこと
 - .1.4 備えつけの非常設備の使用
 - .1.5 環境要因を考慮しつつ遭難捜索の基本型を実施すること

表 A-VI/2-1
救命艇及び救命いかだ並びに救命艇（高速救助艇を除く。）における最小限の
能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
救命艇及び救命いかだ又は救助艇の着水時及び着水後の作業が担当できること	救命艇及び救命いかだ並びに救助艇の構造及び装備並びにこれらの各艀装品 それぞれの救命艇及び救命いかだ並びに救助艇の個々の性能及び設備 救命艇及び救命いかだ並びに救助艇の各種の着水用装置 救命艇及び救命いかだを荒天の海面に着水させる方法 救命艇及び救命いかだの回収方法 本船から離れた後にとるべき措置 荒天の海面で救助艇を着水させ、かつ回収する方法 オンロード離脱装置の使用に関連する危険性 保守手順の知識	次の能力の実地証明により得られた証拠による評価 .1 救命胴衣を着用して反転した救命いかだを復正すること .2 搭載できる人数について、救命艇及び救命いかだに印されたマークを判断すること .3 救命艇及び救命いかだの着水及び乗艇、船舶からの離脱、操作、救命艇及び救命いかだからの下船に対する正しい指揮 .4 救命艇及び救命いかだの準備と安全な着水並びに舷側からの迅速な離脱及びオフロード及びオンロード離脱装置の操作	救命艇及び救命いかだの準備、乗艇及び着水が設備の限界の範囲内であり、かつ船舶から安全に離脱できること 本船から離れた後の最初の措置で生存に対する脅威を最小限にすること 救命艇及び救命いかだ並びに救助艇の回収が設備の限界の範囲内であること 設備は、離脱とリセットに関する製造業者の指示書に従って操作されること

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
救命艇及び救命いかだ又は救助艇の着水時及び着水後の作業が担当できること (続き)		.5 膨張式救命いかだ及び船内機を備えた開放型又は閉鎖型の救命艇の使用、若しくは適切な場合は承認されたシミュレータ訓練による救命艇及び救命いかだ並びに救助艇の完全な回収(オフロード及びオンロード離脱装置の適切なリセットを含む)	

(以降の表の内容は、省略)

A-VI/3 節

上級消火訓練における最小限の要件

能力基準

1～3 (省略)

4 資格証明を得ようとする者は、表 A-VI/3 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づき、要求される能力基準を達成したことを証明しなければならない。

5 上記第 4 項に基づき消火技術の上級訓練に関する資格を得た船員は、表 A-VI-3 第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力基準を維持していることを 5 年毎に証明しなければならない。

6 締約国は、以下の分野において要求される表 A-VI/3 に掲げる能力基準を維持するための船内訓練及び履歴を受け入れることができる。

.1 船上における消火活動の監督

- .1.1 特に組織、戦術及び指揮に重点を置いた航海中及び入港中の消火手順
- .1.2 消火活動中の連絡、調整
- .1.3 煙の排出を含む換気調節
- .1.4 燃料及び電気系統の制御
- .1.5 消火過程における危険（乾溜、化学反応、ボイラ煙路）
- .1.6 材料の保管及び取扱いに関連した火災予防措置及び危険
- .1.7 けが人の管理及び監督
- .1.8 陸上の消防士との調整手順

表 A-VI/3

(省略)

A-VI/4 節

応急医療及び医療に関する最小限の要件

船内で応急医療を行うよう指名された船員の能力基準

1～6 (省略)

表 A-VI/4-1 及び表 A-VI/4-2

(省略)

A-VI/5 節

船舶保安職員に関する技能証明書の発給のための最小限の要件

能力基準

(省略)

A-VI/6 節

船員に対する保安関連訓練及び教育のための最小限の要件

保安関連の精通訓練のための能力基準

1 ISPS コードの規定遵守を要求される海上航行船舶に雇用又は契約されたすべての者（旅客以外）は、以下の能力を持つため、船内業務を割当てられる前に、B 部に記載の指針を考慮して、承認された保安関連の精通訓練を受けなければならない。

- .1 海賊又は武装強盗による脅威又は攻撃を含む保安上の事件を報告すること
- .2 保安上の脅威を認知した際に採るべき手順を心得ていること
- .3 保安関連の非常事態及び不測の事故への対応行動に参加すること

2 指定された保安任務のため海上航行船舶に契約又は雇用された船員は、船内業務を割当てられる前に、各自に割当てられた任務及び責任において、B 部に記載の指針を考慮に入れた保安関連の精通訓練を受けなければならない。

3 保安関連の精通訓練は、船の保安担当職員又はそれと同等の資格を有する者によって実施されなければならない。

保安意識向上訓練のための能力基準

4 ISPS コードの規定遵守を要求される船舶において同船の業務のための乗組定員の一部として何らかの職位で雇用又は契約された船員で指定された保安任務を持たない者は、船内業務を割当てられる前に以下のことをなさなければならない。

- .1 表 A-VI/6-1 に記載の保安意識向上のための承認された訓練又は教育を受けること
- .2 表 A-VI/6-1 第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力基準を達成したことを次のように証明すること

.2.1 表 A-VI/6-1 第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づく能力証明

.2.2 試験又は表 A-VI/6-1 第 2 欄に掲げる科目における承認された訓練プログラムの一部としての継続的な評価

経過規定

5 承認された海上航行業務を本節の発効日に先立って始めた船員は、〔発効日+2年間〕までは、第 4 項の要件を満たしていると認めさせることができる。

.1 過去 3 年間における、合算して少なくとも 6 箇月間の船内要員としての承認された海上航行業務、又は

.2 第 5.1 項で要求される海上航行業務相当と看做される保安職務の遂行実績、又は

.3 承認された試験に合格すること、又は

.4 承認された訓練を修了すること

指定された保安任務を有する船員のための能力基準

6 海賊・武装強盗対策活動を含む保安任務に指名される船員は、表 A-VI/6-2 第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力を証明しなければならない。

7 表 A-VI/6-2 第 2 欄に掲げる科目に関する知識の水準は、資格を得ようとする者が海賊・武装強盗対策活動を含む指定された船上保安任務を遂行するに足るものでなければならない。

8 資格証明を得ようとする者は、次の事項を通じて要求される能力基準を達成したことを証明しなければならない。

.1 表 A-VI/6-2 第 1 欄に掲げる業務、任務及び責任を遂行するために要求される能力を、同表の第 3 欄及び第 4 欄に掲げる能力の証明方法及び能力評価の基準に基づいて証明すること、及び

.2 試験又は表 A-VI/6-2 第 2 欄に記載の資料を含む承認された訓練プログラムの一部としての継続的な評価

経過規定

9 承認された海上航行業務を本節の発効日に先立って始めた指定保安任務担当の船員は、〔発効日+2年間〕までは、以下により、表 A-VI/6-2 第 1 欄に掲げる業務、任務及び責任を遂行する能力を有すると証明することができる。

- .1 過去 3 年間における、合算して少なくとも 6 ヶ月間の指定された保安任務担当の船内要員としての承認された海上航行業務、又は
- .2 第 9.1 項で要求される海上航行業務相当と看做される保安職務の遂行実績、又は
- .3 承認された試験に合格すること、又は
- .4 承認された訓練を修了すること

表 A-VI/5
船舶保安職員の最小限の技能基準の詳細

第 1 欄	第 2 欄	第 3 欄	第 4 欄
能 力	知識・理解及び技能	能力の証明方法	能力評価の基準
船舶保安計画の実施を維持及び監督すること	<p>海賊及び武装強盗に関わる場合のある要素を含む、国際海事保安政策、及び政府、会社並びに任命された者の責任の知識</p> <p>海賊及び武装強盗に関わる場合のある要素を含む、船舶保安計画、関連手順及び記録の保存の目的、並びにこれらを構成する諸要素の知識</p> <p>船舶保安計画の実施及び保安事件の報告の際に取られるべき手順の知識</p> <p>海事保安レベルと、これに伴う船上及び港湾施設環境における保安措置並びに手順の知識</p> <p>船舶保安計画に明記された内部監査、現地調査、及び保安活動の監督並びに監視の実施に関する要件及び手順の知識</p> <p>内部監査、定期的見直し及び保安検査時に明らかとなった不備並びに不適合を、会社保安職員に報告するための要件及び手順の知識</p>	承認された訓練又は試験により得られた証拠の評価	<p>ISPS コード及び改正された SOLAS 条約により確立された原則に、手順及び措置が従っていること</p> <p>保安に関する法的要件が正しく認識されていること</p> <p>手順に従い海事保安レベルの変更に対して即応態勢を取れること</p> <p>船舶保安職員の責任範囲内での通信が明瞭で、了解されていること</p>

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
船舶保安計画の実施を維持及び監督すること (続き)	船舶保安計画を修正するために用いる方法及び手順の知識 海賊及び武装強盗に関わる場合のある要素を含む、船舶並びに港湾施設のインターフェイスの不可欠な運用の維持に関する規定を含め、保安に関連する不測の事態の際の計画、及び保安脅威又は保安の侵害への対応の手順の知識 海賊及び武装強盗に関わる場合のある要素を含む、海事保安に関する用語及び定義の実用的な知識		
保安上のリスク、脅威及び脆弱性を評価すること	リスク評価及び評価手段の知識 保安宣言を含む保安評価文書の知識 海賊及び武装強盗によって用いられる技術を含む、保安措置を回避するのに用いられる技術の知識 差別的になることなく、保安リスクをもたらす可能性のある者を見分けられる知識 武器、危険な物質及び装置に気付き、これらによりもたらされる被害を認識できる知識 必要な場合には、群衆管理及び監督技術の知識	次の技能の実地証明を含め、承認された訓練、又は承認された経験及び試験により得られた証拠の評価 .1 身体検査の実施 .2 非開扉検査の実施	ISPS コード及び改正された SOLAS 条約により確立された原則に、手順及び措置が従っていること 手順に従い海事保安レベルの変更に対して即応態勢を取れること 船舶保安職員の責任範囲内での通信が明瞭で、了解されていること

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
保安上のリスク、脅威及び脆弱性を評価すること（続き）	<p>慎重に扱うべき保安に関連する情報及び保安に関連する通信の取り扱いに関する知識</p> <p>搜索の実施及び調整の知識</p> <p>身体検査及び非開扉検査の方法の知識</p>		
<p>適当な保安措置を実施、かつ維持できるようにするために船舶の定期検査を実施すること</p>	<p>制限区域の指定及び監視に関する要件の知識</p> <p>船舶及び船内の制限区域へのアクセスの管理の知識</p> <p>甲板区域及び船舶の周辺区域の効果的な監視方法の知識</p> <p>他の乗組員及び関連の港湾施設保安職員との調整を含め、貨物及び船用品の取り扱いに関する保安面の知識</p> <p>乗船者の乗下船及び船内でのアクセス、並びに乗船者の所持品の監視方法の知識</p>	承認された訓練又は試験により得られた証拠の評価	<p>ISPS コード及び改正された SOLAS 条約により確立された原則に、手順及び措置が従っていること</p> <p>手順に従い海事保安レベルの変更に対して即応態勢を取れること</p> <p>船舶保安職員の責任範囲内での通信が明瞭で、了解されていること</p>
<p>保安設備及び装置があるならば、適切に運用され、試験され、かつ調整されるようにすること</p>	<p>海賊及び武装強盗による攻撃の際に用いることのできるものを含む、各種の保安設備及び装置並びにこれらの限界の知識</p> <p>船舶保安警報装置の使用に関する手順、指示及び手引きの知識</p> <p>特に海上における、保安設備及び装置の試験、調整及び保守方法の知識</p>	承認された訓練又は試験により得られた証拠の評価	ISPS コード及び改正された SOLAS 条約により、確立された原則に手順及び措置が従っていること

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
保安の意識及び警戒を高めること	<p>海賊及び武装強盗対策を内容とするものを含む、関連条約、コード及びIMO回章に基づく訓練、操練及び演習要件の知識</p> <p>船上における保安の意識及び警戒を高める方法の知識</p> <p>操練及び演習の有効性を評価する方法の知識</p>	承認された訓練又は試験により得られた証拠の評価	<p>ISPSコード及び改正されたSOLAS条約により確立された原則に、手順及び措置が従っていること</p> <p>船舶保安職員の責任範囲内での通信が明瞭で、了解されていること</p>

表 A-VI/6-1

保安意識向上のための最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
高められた意識により海事保安の向上に貢献すること	<p>海事保安用語及び定義に関する基礎知識</p> <p>海賊及び武装強盗に関わる場合の要素を含む、海事保安用語及び定義に関する基礎的な実用知識</p> <p>国際的海事保安政策及び政府、会社、個人の責任に関する基礎知識</p> <p>海事保安レベル及びそれらが船内及び港湾施設における保安対策に及ぼす影響に関する基礎知識</p> <p>保安報告手順に関する基礎知識</p> <p>保安に関連する不測の事態の際の計画に関する基礎知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	高められた海事保安に関連した要件が正確に特定されること

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
保安に対する脅威の認識	<p>保安措置を回避するのに用いられる技術の基礎知識</p> <p>海賊及び武装強盗に関わる場合の要素を含む、保安に対する脅威の認識を可能にする基礎知識</p> <p>武器、危険な物質及び装置の認識、並びにそれらが引き起こす被害についての自覚を可能にする基礎知識</p> <p>保安関連情報及び保安関連連絡の取扱いにおける基礎知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	海事保安に対する脅威が正確に特定されること
保安についての自覚と警戒を維持する必要性と方法の理解	海賊及び武装強盗対策を内容とするものを含む、関連条約、コード及びIMO回章に基づく訓練、操練及び演習要件に関する基礎知識	承認された教育又は承認された課程の受講により得られた証拠による評価	高められた海事保安に関連した要件が正確に特定されること

表 A-VI/6-2

保安任務を担当する船員のための最小限の能力基準の詳細

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
船舶保安計画に規定された状態の維持	<p>海賊及び武装強盗に関わる場合の要素を含む、海事保安用語及び定義に関する実用知識</p> <p>海賊及び武装強盗に関わる場合の要素についての実用知識を含む、国際的・海事保安政策及び政府、会社、個人の責任に関する基礎知識</p> <p>海事保安レベル及びそれらが船内及び港湾施設における保安対策及び手順に及ぼす影響に関する知識</p> <p>保安報告手順に関する知識</p> <p>海賊及び武装強盗に関わる場合のある要素についての実用知識を含む、関連条約、コード及びIMO回章に基づく操練及び演習のための手順と要件に関する知識</p> <p>船内保安計画に規定された保安活動についての検査・調査の実施並びに監督・監視のための手順に関する知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	<p>手順及び措置がISPSコード及び改正SOLAS条約によって確立された原則に基づいていること</p> <p>保安に関連した法的要件が正確に特定されること</p> <p>責任区域内における連絡が明確かつ分かり易く行われること</p>

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
船内保安計画に規定された状態の維持（続き）	船舶並びに港湾施設のインターフェイスの不可欠な運用の維持に関する規定、及び海賊及び武装強盗に関わる場合のある要素についての実用知識を含む、保安に関連する不測の事態への対応計画並びに保安脅威又は保安侵害への対応手順に関する知識		
保安に対する危険及び脅威の認識	<p>保安宣言を含む、保安文書に関する知識</p> <p>海賊及び武装強盗によって用いられる技術を含む、保安措置を回避するのに用いられる技術に関する知識</p> <p>起こりうる保安への脅威の認識を可能にする知識</p> <p>武器、危険な物質及び装置の認識、並びにそれらが引き起こす被害についての自覚を可能にする知識</p> <p>妥当な場合の群衆管理・統制技術に関する知識</p> <p>保安関連情報及び保安関連連絡の取扱いにおける知識</p> <p>物理的な捜索及び無理強いしない形での検査の方法に関する知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	手順及び措置が ISPS コード及び改正 SOLAS 条約によって確立された原則に基づいていること

第1欄	第2欄	第3欄	第4欄
能力	知識・理解及び技能	能力の証明方法	能力評価の基準
定期的な船舶保安検査の実施	<p>制限区域を監視するための技術に関する知識</p> <p>船舶及び船内制限区域への出入りの規制に関する知識</p> <p>甲板区域及び船舶周辺の効果的な監視方法に関する知識</p> <p>貨物及び船内備品の検査方法に関する知識</p> <p>乗船・下船及び船内にいる人とその身の回り品の出入りの規制に関する知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	手順及び措置が ISPS コード及び改正 SOLAS 条約によって確立された原則に基づいていること
保安設備及び装置（もしあれば）の適切な使用	<p>海賊及び武装強盗による攻撃の際に使用できるものを含む、各種の保安設備及び装置並びにこれらの限界に関する全般的知識</p> <p>特に航海中、保安装置及び設備を試験・計測及び保守する必要性に関する知識</p>	承認された教育又は承認された課程の受講により得られた証拠による評価	<p>設備及び装置の操作が確立された操作説明書に基づき、かつ当該の設備・装置の限界を勘案しつつ実施されること</p> <p>手順及び措置が ISPS コード及び改正 SOLAS 条約によって確立された原則に基づいていること</p>

第 VII 章 選択的資格証明に関する基準

A-VII/1 節 選択的証明書の発給

1～3 (省略)

4 支援水準の資格証明を得ようとする者は、

- 1 航海又は機関技術においては、関連する訓練を修了し、表 A-II/4 又は表 A-III/4 に規定されている職務細目のための能力基準を満たさなければならない。資格証明を得ようとする者が追加的な関連訓練を修了し、表 A-III/4 又は表 A-II/4 に規定されている当該の職務細目に関する能力基準を満たす場合は、これらの表に規定されている職務細目を職務細目毎に追加することができる。
- 2 有能海員（甲板部）としては、表 A-II/4 に規定されている能力基準を満たした上で、関連する訓練を修了して表 A-II/5 に規定されているすべての職務細目のための能力基準を満たさなければならない。資格証明を得ようとする者が追加的な関連訓練を修了し、表 A-III/4 又は表 A-III/5 に規定されている当該の職務細目に関する能力基準を満たす場合は、これらの表に規定されている職務細目を職務細目毎に追加することができる。
- 3 有能海員（機関部）としては、表 A-III/4 に規定されている能力基準を満たした上で、関連する訓練を修了して表 A-III/5 に規定されているすべての職務細目に関する能力基準を満たさなければならない。資格証明を得ようとする者が追加的な関連訓練を修了し、表 A-II/4 又は表 A-II/5 に規定されている当該の職務細目に関する能力基準を満たす場合は、これらの表に規定されている職務細目を職務細目毎に追加することができる。

A-VII/2 節 船員の資格証明

1～2 (省略)

3 第VII/1 規則 1.3 の要件の定めるところにより、第VII章の規定に基づき、表 A-II/4 及び表 A-III/4 に規定する職務細目の支援水準の資格証明を得ようとする者は、次のことを修了していなければならない。

- .1 下記からなる 12 ヶ月以上の履歴を含む承認された海上航行業務
 - .1.1 航海当直任務に関連した 6 ヶ月以上の履歴
 - .1.2 機関当直任務に関連した 6 ヶ月以上の履歴、又は
- .2 下記からなる 4 ヶ月以上の承認された海上航行業務期間を含む、航海前又は航海中の特別訓練
 - .2.1 航海当直任務に関連した 2 ヶ月以上の履歴
 - .2.2 機関当直任務に関連した 2 ヶ月以上の履歴
- .3 上記の 3.1 又は 3.2 によって要求される海上航行業務、訓練及び履歴は、しかるべき資格を有する職員又は部員の監督下で行われなければならない。

4 第Ⅶ/1 規則 1.3 の要件の定めるところにより、第Ⅶ章の規定に基づき、表 A-II/5 及び表 A-Ⅲ/5 に規定する職務細目の支援水準の資格証明を得ようとする者は、航海及び機関当直の一部をなす部員として勤務する資格を有しつつ、STCW コードの A-II/5 節及び A-Ⅲ/5 節に規定する能力基準を満たし、かつ次のことを修了していなければならない。

- .1 下記からなる 30 箇月以上の承認された海上航行業務
 - .1.1 有能海員（甲板部）の任務に関連した 18 ヶ月以上の履歴
 - .1.2 有能海員（機関部）の任務に関連した 12 ヶ月以上の履歴、又は
- .2 承認された訓練プログラム及び下記からなる 18 ヶ月以上の承認された海上航行業務
 - .2.1 有能海員（甲板部）の任務に関連した 12 ヶ月以上の履歴
 - .2.2 有能海員（機関部）の任務に関連した 6 ヶ月以上の履歴、又は
- .3 甲板部と機関部を合わせた 12 ヶ月以上の承認された海上航行業務を含む、下記からなる、承認された甲板部・機関部統合特別訓練プログラム
 - .3.1 有能海員（甲板部）の任務に関連した 6 箇月以上の履歴

.3.2 有能海員（機関部）の任務に関連した 6 箇月以上の履歴

A-VII/3 節

選択的証明書の発給を規律する原則

（規定なし）

第Ⅷ章 当直に関する基準

A-Ⅷ/1 節 任務への適合

1 主管庁は、船員、特に船舶の安全で確実な運航に関わる任務に当たる者の疲労が引き起こす危険に注意しなければならない。

2 当直を担当する職員又は当直を行う部員として任務を割当てられた者及び安全、汚染防止及び保安に係る任務を割当てられた者は、最低でも次のような休息を与えられなければならない。

.1 24 時間あたり最低 10 時間の休息

.2 7 日間あたり 77 時間の休息

3 休息時間は、2 回を超えない期間に分けることができる。そのうちの 1 回の休息は少なくとも 6 時間以上とし、休息時間と次の休息時間の間隔は 14 時間を超えてはならない。

4 2 及び 3 に定める休息時間の要件は非常時、操練又はその他の特別な状況の場合には、この限りではない。非常招集、消火及び救命艇操練、並びに国内法規及び国際文書によって定められた操練は、できるだけ休息時間への妨げとならぬよう、又、疲労を引き起こさないよう実施されなければならない。

5 主管庁は、当直者が容易に知ることができるよう、当直予定表を掲示するよう求めなければならない。これらの予定表は、標準様式*により、当該船舶で業務上使用されている言語及び英語にて作成しなければならない。

6 機関区域に当番が配置されていない場合などに船員に呼び出しがかかった時、もしその招集によって通常の休息時間が妨げられた場合は、これを埋め合わせるためのしるべき休息時間を同船員に与えられなければならない。

7 本項の規定の遵守を監視・検証できるよう、主管庁は、船員の毎日の休息時間に関する記録を標準様式*により、当該船舶で業務上使用されている言語及び英語にて作成・維持するよう求めなければならない。各船員は自分に係る記録のコピーを受け取る

が、これは船長又は船長及び船員たちの認可を受けた者によって裏書されなければならない。

8 本項のいかなる規定も、船舶、船上の者又は貨物の安全に関わる当面の問題解決のため、若しくは他船又は海上遭難者を援助するために必要な作業を船員に要求する船長の権利を妨げるものではない。従って船長は、正常な状況が回復するまで予定された休息時間を一時中断し、必要な作業の遂行を船員に要求できる。正常な状況が回復され次第、可及的速やかに、予定された休息時間に業務を行った船員に対し、船長はしかるべき休息時間を与えることを確保しなければならない。

[9 他の関連する国際条約で規定するごとく、本条約のいかなる規定も、締約国が上記の制限に対して例外を適用することを妨げない。これらの例外は、いかなる場合も 7 日間あたり 70 時間の休息を下回ってはならない。

9 の 2 そのような例外は、可能な限り、B-8-1 節に記載の疲労防止に関する指針を勘案しつつ、基準に従わなければならない。]

[9 もし休息時間がいかなる場合も 7 日間あたり 70 時間を下回ることがない場合は、締約国は、上記 2.2 で定める要求される休息時間に対して例外を認めることができる。このような例外は、連続する 2 週間以上にわたって適用してはならず、また可能な限り、B-8-1 節に記載の疲労防止に関する指針を考慮しなければならない。]

指定された安全、保安、海洋環境保護の任務を遂行中の船長、職員その他の船員によるアルコールの乱用を防ぐため、主管庁は、血中アルコール・レベル (BAC) を 0.05% 以下にするか、呼気中のアルコール分を 0.25 mg/l 以下にするか、若しくはそのようなアルコール濃度につながるアルコール摂取量を抑えるなどの制限を設けなければならない。

* 船員の船内就労時間協定に関する IMO/ILO の指針及び船員の就労時間又は休息時間記録様式を使用することができる。

A/VIII/2 節

当直体制及び遵守すべき原則

第 1 部 資格証明

(省略)

第 2 部 航海計画

(省略)

第 3 部 当直の一般原則

8 当直は、下記の船橋及び機関室リソース・マネージメント原則に基づいておこなわなければならない。

- .1 状況に応じて当直職員及び乗組員の適正な配置を確保すること。
- .2 当直員を配置する場合、配員の能力・資格上の制限を考慮すること。
- .3 当直員が、自己の役割分担と責任を理解していること及びチームの役割を確立すること。
- .4 船長、機関長及び当直任務の職員は、他の人員、設備・機器及び情報など入手可能なリソースを最大限に活用しつつ、適切な当直を維持すること。
- .5 当直員は設備・機器の機能と操作を理解し、それらの取扱いに精通すること。
- .6 当直員は各部署・設備・機器からの情報を理解し、それに対する対応方法を理解すること。
- .7 各部署・設備・機器からの情報はすべての当直員によって適切に共有されること。
- .8 いかなる状況にあっても、当直員は緊密な情報交換を維持すること。そして
- .9 当直員は、船舶の安全のためにとるべき行動に疑問を生じた場合は、躊躇することなく、船長、機関長及び当直任務の職員にその旨を通告すること。

第 4 部 海上における当直

一般的に当直に適用する原則

9 (省略)

10 船長は、当直体制が安全な航海当直及び荷役当直の維持に十分なものであることを確保しなければならない。航海当直の職員は、船長の全般的な指揮の下に、自己の任務の遂行中、ある船舶を安全に航行させる責任(特に、衝突及び乗揚げを回避する責任)

を有する。

11～12 (省略)

第 4-1 部 航海当直の維持に当たり遵守すべき原則

13～17 (省略)

当直体制

18 船橋における当直体制(適切な資格を有する部員が当直を担当する場合を含む。)の編成にあたっては、特に次の事項を考慮しなければならない。

.1～.3 (省略)

.4 **ECDIS**、レーダ又は電子的測位機器等の航法装置及びその他の安全航行に関連のある装置の使用及びこれらの装置の作動状態

19～46 (省略)

* 35 関係 SOLAS 規則 V/24、V/25 及び V/26 を参照のこと

47 海図は、船舶に備えられている最大尺度のものであり、その海域に適し、かつ、利用可能な最新の情報によって補正されているものを使用しなければならない。船位の決定は、頻繁に行わなければならない、状況により可能な場合には、常に 2 以上の方法で行わなければならない。**ECDIS** を使用する場合は、適切な使用コード(尺度)の海図を用い、船位は独立した船位決定方法により、適切な間隔で確認しなければならない。

48～51 (省略)

第 4-2 部 機関当直の維持に当たり遵守すべき原則

52 第 4-2 部、第 5-2 部及び第 5-4 部において「機関当直」の語は、当直を担当する者又は当直を担当する者の集団の意味にも、若しくは職員が機関区域の当直の責任を有している期間(職員が機関区域にいることを要求されているかいないかを問わない。)の意味にも用いるものとする。

53～83 (省略)

第 4-3 部 無線当直の維持に当たり遵守すべき原則

(省略)

第 5 部 港における当直

すべての当直に適用する原則

90～97 (省略)

第 5-1 部 甲板当直の引継ぎ

98 当直を引継ぐ職員は、甲板当直の引継ぎに先だって、当直の引継ぎを受ける交代職員に次の事項を知らせなければならない。

.1～.11 (省略)

第 5-2 部 機関当直の引継ぎ

(省略)

第 5-3 部 甲板当直の実施

(省略)

第 5-4 部 機関当直の実施

(省略)

第 5-5 部 危険貨物を運送する船舶の港における当直

(省略)

第 5-6 部 荷役当直

107 荷役作業の立案と実施に責任を有する職員は、非船舶要員に関わる場合を含め、具体的な危険の防止を通じて作業が安全に行われることを確保しなければならない。

附属書 4 外交会議決議草案

決議案 1 経過規定及び早期の実施

2010 年マニラ会議は、

改正 1978 年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード (STCW 条約及びコード) についての改正を採択し、

[5 年間隔または改正が発効した後に次回の資格証明書の更新が行われるまでの時期のうちどちらか遅い方で、外交会議によって採択された改正に従って締約国が証明書を発行、認可、是認することを求められるという経過規定に関する第 I/15 規則を含めることで合意し、]

[発効日プラス 5 年間] [または] [改正が発効した後に次回の資格証明書の更新が行われるまでの時期のうちどちらか早い方] までに十分な遵守を達成するためには、締約国は STCW 条約及びコードを各国内の訓練、資格証明及び管理システムの中で実施するための適切な措置を迅速に講ずる必要があることを認識しつつ、

かつ、STCW 条約及びコード要件の実施に関連して生ずるかもしれない諸問題が、実行可能な最高の能力基準を可及的速やかに導入するという目的を阻害する可能性を懸念しつつ、

1. 各締約国に対し、会議によって採択された STCW 条約及びコードの改正をそれぞれの国内システムの下で実施することについての第 I/15 規則の経過規定のみならず、それに関連して生ずるいかなる問題についての進展をも、常に機関 (IMO) の海上安全委員会に報告するよう促す。
2. さらに各締約国に対し、外交会議によって採択された STCW 条約及びコードの改正を早期に実施するために適切な措置を講ずるよう促す。そして
3. 実行可能な最高の能力基準の可及的速やかな導入を促進するため、経過を整然たるものにならしめ、また十分かつ効果的な実施を阻害する可能性のある困難な状況を未然

に防ぐ目的をもって、国際海事機関の海上安全委員会に対し、全締約国による STCW 条約及びコードの実施に向けた進展を監視するよう要請する。

決議案 2

資格証明書の検証と裏書

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

すべての船員のための適切な教育と訓練及び彼らが習得する経験の重要性を認識し、

また、すべての船舶が適切に訓練され資格証明された船員によって配員、運航される必要性を認識し、

さらに、船員に発行される資格証明書の検証と裏書がそれらの証明書の発行に関わる違法な行為を防止するのみならずポート・ステート・コントロール活動を支える観点からも肝要であることを認識しつつ、

各国主官庁に対し、以下のような適切な措置を講ずるよう勧告する。

- 1 彼らが発行する資格証明書の真正性と有効性及び裏書の発行を促進するため、電子データベースを確立すること。及び
- 2 資格証明書の真正性と有効性の検証及び裏書のため他国の主官庁から要請があった場合は、これに適切かつ適時に対応すること。

決議案 3

訓練、資格証明及び船舶の配員レベルについての基準

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

すべての船員のための適切な教育と訓練及び彼らが習得する経験の重要性を認識し、

すべての船舶が適切に訓練され資格証明された船員によって配員、運航される必要性を認識し、かつ、STCW条約及びコードが船員の訓練及び資格証明並びに当直の基準を確立していることに留意しつつ、

- .1 STCW条約及びコードが訓練と資格証明の基準に関わる文書ではあるが船舶の配員レベルを決定するものではないことを再確認する。
- .2 船舶の配員レベルに関するいかなる決定も、国際海事機関によって採択された安全配員*の原則を勘案しつつ、各主官庁と当該船主がなすべき責任であることを再確認する。

* 1999年11月25日に国際海事機関総会で採択された安全配員の原則に関する改正決議A.890(21)を指す。

決議案 4

船員の技術知識、技能及び専門性の促進

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

報告で指摘されかつ予想もされているように、国際航海に従事する船舶に対して効果的に配員し船舶を運航するための有資格船員が不足していることに懸念をもって留意し、

かつ、訓練及び資格証明プロセスの全体的な選定の有効性は、船員が船上勤務の過程において示す技能、力量、能力を通じてのみ評価可能であることを理解しつつ、

各国主官庁に対し、船社が以下のことを確実にできるような施策を講ずることを勧告する：

- .1 技術知識、技能および専門性について最高の実行可能な水準を示す船員を選定するための基準とプロセスを確立すること。
- .2 船舶要員がその任務の遂行において示す水準を監視すること。
- .3 船上に勤務するすべての職員に対して、配下の要員の訓練に積極的に参加するよう奨励すること。
- .4 配下の要員が船上勤務の間に知識と技能の習得面で達成する進歩を注意深く監視し頻繁に検討すること。
- .5 再教育、知識・技能更新訓練を必要に応じ適切な間隔で実施すること。及び
- .6 あらゆる船上勤務者に海事専門職に対する誇りを植え付け、かつ安全文化と正しい環境意識を醸成するため、あらゆる適切な施策を講ずること。

決議案 5

船員の身体適性に関する国際基準を実行するための指針の策定

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

船長と乗組員の全般的身体適性が海上における人命と財産の安全にとって重要であること、及び海洋環境の重要性を認識し、

STCW条約とコード及び2006年海事労働条約に含まれている船員の身体適性に関する国際基準を認識しつつ、

かつ、STCW条約及びコードが船員の訓練及び資格証明並びに当直の基準を確立していることに留意しつつ、

国際海事機関が国際労働機関及び世界保健機関との協力のもとに、前述の基準を実施するための指針を策定することを求める。

決議案 6

国際海事機関によって公表されているモデル課程の改訂

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

モデル課程は国際海事機関（IMO）によって認可・公表され、STCW条約及びコードの定める最小限の要件に基づく中核カリキュラムであるが、これらが船員の訓練と資格証明に多大な貢献をなしてきたことを認識し、

前述のモデル課程が、提供する訓練の質を改善する上で多くの訓練機関のために役立ってきたこと、そして能力評価手続きを改善するために用いられてきたことを理解し、

そしてSTCW条約及びコードの訓練と評価に関する規定のさらに一様な適用を図ることを願いつつ、

以下のことを勧告する。

- 1 STCW条約及びコードの訓練と評価に関する規定の実施について指針を定めているそれらのモデル課程を改訂・更新するため、IMOが措置を講ずること。
- 2 各国政府及び諸国際機関が、モデル課程の改訂・更新のため資金を提供するか、もしくは支援すること。

決議案 7 技術協力の促進

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

すべての船員のための適切な教育と訓練及び彼らが習得する経験の重要性を認識し、

さらに、特に発展途上国においては、専門訓練プログラムを供与し必要とされる経験を習得するための施設が限られている場合があることを認識し、

かつ、STCW条約及びコードを実施するため、しかるべき訓練と経験を与える上で必要とされる適切な専門知識と施設が不足している国々を援助する技術協力の促進が有用であることを信じて、

- .1 締約国に対し、IMOと協力してSTCW条約及びコードの改正要件を満たすことが困難であり、そのような援助を求める諸国に援助を提供するか提供のための取り決めを行うことを強く促す。
- .2 IMOに対しては、当該各国に彼らが必要とする援助を供与するとともに、そのための適切な規定を技術協力プログラムの中に設けるための努力を強化することを求める。

決議案 8

極地海域を航行する船舶に乗組む船長及び職員の能力を確保するための施策

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

極地海域での海上交通量が増大した結果、近年、同海域においていくつかの事故が発生したことに留意し、

さらに、極地海域が遠隔地にあること、そしてその水路・海象・気象・氷河特性の独自性が際立っていることから、捜索救助、介護、人員の退避及び汚染への対処が作業上及び後方業務上大きな問題を伴うことに留意し、

極地海域を航行する船舶の運航には、それらに乗組む船長や職員に特定の教育、訓練、経験及び関連する技能が要求されることを認識し、

また、この特殊な航海に特化した専門課程を通して船長や職員を訓練するための政府の努力を認識し、

さらに、「極地海域を航行する船舶のための指針*」と、現在国際海事機関によって策定中の「極地コード」が採択された場合の強制訓練要件の必要性の双方を認識しつつ、

各国主官庁に対し、極地海域を航行する船舶の船長や職員が適切な訓練や経験を積むことによって以下のことが確実にできるようになるための施策を講ずることを勧告する。

- 1 氷河・水路・海象・気象上の要因を勘案しつつ極地海域への航海計画を立案すること。

* 2009年12月2日に国際海事機関総会で採択された決議 A.1024(26) — 極地を航行する船舶のための指針 — を参照のこと。

- .2 極地海域、特に風と視界の悪条件下での氷で覆われた制限海域、を安全に航行すること。
- .3 政府間合意に基づく要件及び海上における人命の安全と海洋環境の保護に関する要件の遵守を監督し、これを確かなものとする事。

決議案 9

海事関連職への新規参入者の勧誘と確保

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

国際貿易の90%以上が海上輸送によって担われていること、そして海運産業が安全、確実、効率的かつ環境に対する健全性をもって運営されていることを認識し、

全世界的かつ持続可能な発展と繁栄に多大な貢献をなす海運に対して、船員が極めて重要な労務サービスを提供していることを認識し、

また、今日ますます高度化する船舶の運航を、そのあらゆる側面で安全、確実、効率的かつ環境に対する健全性をもって運航する能力を有する船員に委ねる必要性を認識し、

さらに、何らかの差別的法制が採択または差別的な慣行が制定された場合、海事職を志す若者の気持ちを挫くだけでなく、現職の船員に対しても海事職に留まる意欲を削ぐ可能性があることを認識し、

報告で指摘されかつ予想もされているように、船舶に対して効果的に配員し船舶を運航するための有資格船員が不足していることに懸念をもって留意し、

また、国際労働機関、BIMCO、国際海運集会所、国際海運連盟、INTERCARGO、INTERTANCO及び国際運輸労連の協力を得て国際海事機関の事務局長が開始した「海へ出よう！」キャンペーンが2008年11月に開始されたことに感謝をもって留意し、

若者の間に海事職の魅力を広めるために行ってきた海運業界の総合的な努力に感謝しつつ、

各国主官庁、船社、船主・船舶管理者・船員機関その他の関連団体に対し、若者の間に海事職の魅力を広めかつ現職の船員を業界に留めるために、以下のことによって最大限の努力を行うよう勧告する。

- .1 海事産業に対する一般人の好意的な理解、特に若者の理解、を涵養すること。
- .2 海事職を通じて得られるさまざまな機会について、若者の間に意識と知識を広めること。
- .3 海上生活の質を陸上勤務のそれにさらに近づけるとともに、インターネットへのアクセスを含め、船上の生活施設を向上させること。
- .4 船上に勤務するすべての職員に対して、配下の要員を彼らの船上勤務の間に訓練し助言することに積極的に関与するよう奨励すること。
- .5 訓練生のため、新造船での適切な宿泊設備の提供を奨励すること。及び
- .6 あらゆる船上勤務者に海事専門職に対する誇りを植え付け、かつ安全を尊ぶ文化と正しい環境意識を醸成するため、あらゆる適切な施策を講ずること。

決議案 10

訓練生のための宿泊設備

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

報告されかつ予想もされているように、国際航海に従事する船舶に対して効果的に配員し船舶を運航するための有資格船員が不足していることに懸念をもって留意し、

今日ますます高度化する船舶の運航を、そのあらゆる側面で安全、確実、効率的かつ環境に対する健全性をもって運航する能力を有する船員に委ねる必要性を認識し、

また、最低限の強制的航海勤務が、実作業レベル及び支援レベルの資格証明に関するSTCW条約及びコードで規定されている要件の一部をなすことを認識し、

さらに、訓練生のための船上の適切な宿泊設備の不足が、彼らを適正に訓練し海事職に留める上での重大な阻害要因となり、これが前述の人手不足に拍車をかけていることを認識しつつ、

船主、船舶管理者及び船社に対し、既存の船舶であれ新造船であれ、訓練生のために適切な宿泊設備を提供することを勧告する。

決議案 11
海事産業への女性進出の促進

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

国際海事機関によって策定された「海事部門における女性差別撤廃のための長期及び中期計画」に留意し、

海事部門において女性の訓練を促進する、という国際海事機関の目的への支持を表明し、

また、海事訓練を受ける機会と船上勤務への雇用機会に対して男女が共に平等のアクセスを有することは大いに望ましいと考えつつ、

各国政府に対し、以下のことを勧告する。

- .1 海事産業のすべての部門に対する男女平等のアクセスを保証することに格別な考慮を与えること。
- .2 海事職における女性の役割を強調するとともに、彼女らの海事訓練及び海事産業のすべてのレベルへの進出を促進すること。

決議案 12

STCW 条約及びコードの将来的改正

2010 年マニラ会議は、

改正 1978 年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW 条約及びコード）についての改正を採択し、

技術と訓練方法面での急激な発展に伴って、STCW 条約及びコードの見直し、改正、更新について一貫したアプローチが必要となっていることに留意し、

しかしながら、STCW 条約及びコードの頻繁な改正は各国の海事主管庁、船主、海事訓練・教育機関、船員などにとって問題となる可能性があるため避けるべきであることに留意しつつ、

- .1 STCW 条約及びコードの重要かつ広範な改正は、5 年サイクルで提起・採択するのが望ましい旨を勧告する。
- .2 さらに、STCW 条約及びコードについての包括的見直しは 10 年ごとに行うべきであると勧告する。これは、中間期において何らかの矛盾点が確認された場合にそれらに対処し、かつ条約及びコードを最新技術に対応させるためである。

決議案 13
国際労働機関の貢献

2010年マニラ会議は、

改正1978年の船員の訓練及び資格証明並びに当直の基準に関する国際条約及び船員の訓練及び資格証明並びに当直に関するコード（STCW条約及びコード）についての改正を採択し、

船員の職業上の安全と健康に関わる事柄についての国際労働機関（ILO）の役割と能力と専門知識を認識し、

また、かつて発効し実施された2006年海事労働条約（MLC 2006）が、国際海事機関と海運産業の目的を達成する上で、大きな利益をもたらしていることを認識しつつ、

- .1 前述のSTCW条約及びコード改正の策定作業に際してILOが行った貢献に対して感謝の意を表明する。そして
- .2 MLC 2006を未だに批准していない各国政府に対し、それを早急に批准することで同条約を迅速に発効させ、その後の広範かつ効果的な実施を確実なものとするよう強く勧告する。

附属書 5
総会決議草案 A.[.....] (27)
最小安全配員の原則

総会は、

海上安全と船舶による海洋汚染の防止・規制についての規則と指針に関わる総会の役割に関する国際海事機関条約の第 15(j)条を想起し、

また、海上安全委員会に対して審議、とりわけ安全の観点からの外洋航行船舶への配員についての審議、を要求している同条約の第 28(a)条を想起し、

安全配員が、船舶、乗組員、乗客、貨物と財産の安全と保全、及び海洋環境の保護のために必要とされる有資格かつ経験を積んだ船員の数に関わる機能であることに留意し、

IMO の関連文書のみならず、海上安全と海洋環境の保護に関連して ILO、ITU 及び WHO によって採択された文書の要件の重要性を認識し、

適切な安全配員文書またはそれに相等する文書を、最小安全配員の物証として発給することに関する改正 SOLAS 第 V/14 規則の規定に留意し、

また、船舶及び港湾施設の保安に関する SOLAS 第 XI-2 章規定及び船舶及び港湾施設の保安の国際（ISPS）コードの規定に留意し、

これらの要件の遵守を維持していく船員の能力は、訓練、就労・休息时间、職業上の安全・健康・衛生及び適切な食糧の支給に関連する条件を通じて得られる彼らの継続的な能率性次第であることに留意し、

船舶の安全配員を決定するために運営する枠組みとしての大まかな原則を国際的に受け入れることは、海上安全・保安及び海洋環境保護を大いに高めることになると信じ、

（第 88 回）海上安全委員会が勧告することを検討した結果、

1. 最小安全配員の原則、安全配員の原則を適用するための指針、最小安全配員文書の内容及びモデル様式に関する指針を採択する。これらは、それぞれ現決議に対する附属書 1、2、3、4 及び 5 において記載されているものである。

2. 各国政府に対し、自国の国旗を掲げる船舶への最小安全配員を決定するに際しては、附属書 1 に記載の原則と附属書 5 に記載の手続きを遵守し、かつ附属書 2 及び 3 に記載の指針を勘案するよう勧告する。
3. 各国政府に対し、最小安全配員文書には少なくとも附属書 4 に記載の情報を確実に含めることを要請する。
4. さらに各国政府に対し、自国を訪れる外国船について現行の国際条約に従ってポート・ステート・コントロールを行使する際は、法令遵守に関して最小安全配員文書を、当該船舶が適切に配員されていることの証拠として看做すよう要請する。
5. 海上安全委員会に対し、現在検討中の本決議案を保持することを要請する。
6. 決議案 A.890(21)及び A.955(23)を廃止する。

附属書 1 最小安全配員の原則を適用するための指針

1 序論

1.1 これらの指針は、第 3 節に記載の最小安全配員の原則を適用する際に用いられるものである。この第 3 節は、改正 1978 年 STCW 条約第 III 条の対象である船舶の安全運航、改正 1974 年 SOLAS 条約第 XI-2 条の対象である船舶の保安、及び海洋環境の保護を確実にするためのものである。

1.2 主官庁は、本附属書において推奨されている規定と異なる措置、技術進歩及び特殊な船種や業界に適合させた措置を保持または採択する場合があるかもしれない。いずれにせよ行政府は、具体的な配員措置が一定の安全度、少なくともこれらの指針によって確立されたものと同等の安全度、を確保していると常に満足していなければならない。

2 目標

2.1 これらの指針の目標は、船舶の安全・保安、海上での安全な航行と作業、港湾での安全な作業、傷害事故や人命の損失防止、海洋環境及び財産に対する被害の防止を確実なものとし、かつ疲労を防ぐことによって船員の福祉と健康を確保するため、船舶に対して充分かつ効果的・効率的な配員を保証することである。これらの目標は以下のことによって達成することができる。

- .1 目的志向のアプローチを採用すること。
- .2 効果的な実行のための手続き。
- .3 効果的な施行。

3 最小安全配員の原則

3.1 船舶の最小配員を決定する際には、以下の原則を遵守しなければならない。

- .1 以下のことができる能力。

- .1.1 改正 1978 年 STCW 条約第 VIII/2 規則に従って安全な航海当直、停泊当直、機関当直及び無線当直を維持し、自船の全般的な見張りを維持すること。
 - .1.2 船舶を安全に係留・離岸すること。
 - .1.3 航海中に停留またはほぼ停留の場合、船舶の安全機能を適切に操作すること。
 - .1.4 海洋環境破壊防止のために適切に運航すること。
 - .1.5 火災の危険を最小限にするため、人が入ることのできる場所についてはすべて安全装置を維持し、常にきれいにしておくこと。
 - .1.6 船上での医療に備えること。
 - .1.7 輸送中の貨物の安全に万全を期すこと。
 - .1.8 船舶の構造的保全のため、適宜、検査・保守を行うこと。
 - .1.9 船舶保安規定（Ship's Security Plan）に従って運航すること。
- .2 以下のことができる能力。
- .2.1 すべての水密閉鎖装置を操作し、それらを良好な状態に維持し、かつ有能な損傷対策班を配置すること。
 - .2.2 船上のすべての消火・非常装置及び救命器具を操作し、これらの機器が海上で必要となった場合に備えて整備し、船上の人員を招集・点呼及び下船させること。
 - .2.3 主推進機関及び汚染防止装置を含む補助機を操作し、航海中の予期可能な危険を克服できるよう、それらを安全な状態に保つこと。
- 3.2 下記の船上機能も、適宜、勘案しなければならない。
- .1 すべての要員に対する、消火・非常装置及び救命器具、水密閉鎖装置の操作及び使用法を含む、継続的な訓練要件。
 - .2 特定の船種向け、及び乗組員が複数の部門にまたがる船内作業に従事している場合のための専門的訓練要件。
 - .3 適切な食物と飲料水の用意。
 - .4 非常時において職務と責任を引き受けることの必要性。

- .5 新入船員に必要とされる訓練と経験を習得させるため、彼らに訓練機会を与える必要性。

附属書 2

最小安全配員決定のための指針

1 最小安全配員の決定

1.1 船舶の最小安全配員は、以下に列挙する要素を含め、関連するあらゆる要素を勘案して決定しなければならない。

- .1 船型及び船種。
- .2 主推進機関及び補助推進機関の番号、サイズ及び種類。
- .3 船舶自動化のレベル。
- .4 船舶の構造と搭載機器。
- .5 採用されている保守方法。
- .6 積載する貨物。
- .7 寄港の頻度、航海の期間と性質。
- .8 就航地域・海域及び船の作業内容。
- .9 船上での訓練活動が実施される範囲。
- .10 会社によって船に提供される陸上サポートの程度。
- .11 適用される就労時間制限及び・または休養要件。
- .12 承認された船舶保安規定の適用。

1.2 STCW コードで規定されているように、船舶の最小安全配員は、適切な責任レベルにおける職務遂行能力に基づいて決定されなければならない。職務遂行能力には以下のものが含まれる。

- .1 次のことが要求される職務、当直任務、責任からなる航海。
 - .1 安全航海の立案と実施。
 - .2 STCW コードの要件に準じた安全航海当直の維持。
 - .3 あらゆる条件下での操船。
 - .4 安全な係留と抜錨。

- .2 次のことが要求される職務、当直任務、責任からなる荷役及び積付。
 - .1 積載する貨物の安全な船積、積付、固縛、航海中及び荷降ろしの際の管理についての立案と監視。

- .3 次のことが要求される職務、当直任務、責任からなる操船及び船上の人員に対する配慮。
 - .1 船上の人員すべての安全・保安を維持し、救命・消火その他の安全機器を作動可能な状態に維持すること。
 - .2 あらゆる水密閉鎖装置の操作及び保守。
 - .3 船上のすべての人員を招集・点呼及び下船させる作業の実施。
 - .4 海洋環境保護活動の適宜実施。
 - .5 船上での医療に備えること。
 - .6 船の安全と保安に必要な管理業務の実施。

- .4 次のことが要求される職務、当直任務、責任からなる舶用機関技術。
 - .1 船の主推進機関及び補助機を操作・監視し、それらの機械の性能を評価すること。
 - .2 STCW コードの要件に準じた安全機関当直の維持。
 - .3 燃料及びバラスト作業の管理と実施。
 - .4 船の機関機器・システムの安全と修理・点検の維持。

- .5 次のことが要求される職務、当直任務、責任からなる電気、電子及び制御技術。
 - .1 船の電気及び電子機器の操作。
 - .2 船の電気及び電子システムの安全性維持。

- .6 次のことが要求される職務、当直任務、責任からなる無線通信。
 - .1 船の無線通信機器を用いた情報の送受信。
 - .2 ITU 無線通信規則及び改正 1974 年 SOLAS 条約の要件に準じた安全な無線当直の維持。
 - .3 非常事態における無線通信業務の提供。

- .7 次のことが要求される職務、当直任務、責任からなる保守・修理作業。
 - .1 船舶とその機関、機器及びシステムに対して、適切な保守・修理方法に基づいた保守・修理を行うこと。

1.3 第 1.1 項及び第 1.2 項に記載の要素や機能に加えて、最小安全配員の決定には以下のことも勘案しなければならない。

- .1 航海中でない船舶の海上における安全、保安、環境保護機能の管理。
- .2 小型船の場合を除き、三交代当直制を敷く必要がないことを船長に保証するため、有資格の甲板部職員を配置すること。
- .3 推進出力の小さい船舶、または無監視の機関区域についての規定に基づいて運航している船舶の場合を除き、三交代機関当直制を敷く必要がないことを機関長に保証するため、有資格の機関部職員を配置すること。
- .4 船上で適用される職業上の健康・衛生基準を維持すること。
- .5 船上のすべての人員に適切な食べ物と飲料水を必要に応じて支給すること。

1.4 最小安全配員の決定に際しては、以下のことも考慮されねばならない。

- .1 船員に与えられた船内での就労時間と休憩時間をしかるべく考慮した上での、仕事量がピークに達する状況や条件に対応するために必要な有資格者とその他の要員の数。
- .2 安全操船と船の保安及び海洋環境の保護のために必要とされる活動を調整す

るための船長の能力と船の乗組定員。

附属書 3 最小安全配員の原則の適用における責任

1 会社の責任

1.1 主官庁は船舶の運航に責任のある会社に対し、同主官庁が指定した様式に従って船舶の最小安全配員に関する申請の提出を要求することができる。

1.2 船舶の最小安全配員に関する申請を作成する際、会社は本決議案に盛り込まれた原則、勧告及び指針を適用するとともに、以下が要求される。

- .1 船舶の安全運航な、保安、海洋環境の保護及び非常事態への対応に必要な乗組定員に関する職務、義務及び責任について評価を実施すること。
- .2 任務への適合規定及び就労時間記録が確実に履行されるよう保証すること。
- .3 船舶の安全運航、保安、海洋環境の保護及び非常事態への対応に必要な乗組定員の人数、階級・資格について評価を実施すること。
- .4 主官庁に対し、船舶の安全運航、保安、海洋環境の保護及び緊急事態への対応に必要な乗組定員の人数、階級・資格についての評価に基づいた最小安全配員に関する申請を提出すること。その際、申請した乗組定員が乗客の避難を含む非常事態へどう対処するかを説明することにより、申請の妥当性の根拠を示すこと；
- .5 仕事量がピークに達する状況や条件及び要件への対応を含め、最小安全配員が常に、そしてすべての点において適切であり、かつ本決議案に盛り込まれた原則、勧告及び指針に従っていることを保証すること；
- .6 航行地域、船舶の構造、機関、機器、運航及び保守または管理など安全配員に影響をもたらす可能性のある要因について変更がなされた場合、同船舶の最小安全配員の新しい申請を作成し、主官庁に提出すること；

2 主官庁による承認

2.1 会社から主官庁に提出された船舶の最小安全配員の申請は、以下のことを確実

にするため主官庁によって評価される。

- .1 当該の船舶の乗組定員が、安全運航、保安、海洋環境の保護及び非常事態への対応に必要とされる職務、当直任務及び責任を果たすに足る要員の人数、階級・資格を含んでいること。
- .2 船長と職員と他の乗組員は、船舶の安全に関する事柄以外、適切な国家規則の適用により、業務と休息時間の要件に従い超過勤務を必要としないこと。

2.2 そのような原則を適用する際に、主管庁は、以下に関する既存の IMO、ILO、ITU 及び WHO の規則を適切に考慮すべきである。

- .1 当直。
- .2 就労又は休息時間。
- .3 安全管理。
- .4 船員の資格証明。
- .5 船員の訓練。
- .6 職業上の安全、健康及び衛生。
- .7 乗組員の居住設備。
- .8 保安。
- .9 無線通信。

2.3 主管庁は、会社が申請した原案を評価し、船舶の定員の構成を承認できないときは、船舶の最小安全配員の申請の修正を会社に要求する。

2.4 主管庁は、この決議の原則、勧告及びガイドラインに従って最小安全配員が決められ、安全運航と保安と海洋環境保護と緊急事態への対応に関し、あらゆる点で適切であることが完全に満足される場合のみ、申請を承認し、最小安全配員証書を発給する。

2.5 主管庁は、会社が最小安全配員に影響する運航と整備又は船舶の管理に関する航行区域、船舶の構造、機関、設備の変更がある場合の最小安全配員を提出できない場合は、最小安全配員証書を取り消す。

2.6 主管庁は、適宜、休息時間の要件を継続的に遵守しない船舶の最小安全配員証書を見直し、取り消す事が出来る。

2.7 主管庁は、安全配員を決定する総ての原則を考慮して、最小安全配員証書に、

航海当直に3人未満の適任者の配置を認めることについては、非常に慎重に事情を検討すべきである。

附属書 4

最小安全配員証書の内容とモデル様式についての指針

1 主管庁によって発行される、最小安全配員証書には、以下の情報が含まれていなければならない。

- .1 船名、船籍港、船舶番号または船名符字、IMO 番号、総トン数、主推進機関出力、船種及び航行地域、無人化機関室の有無及び会社が ISM コードで定義されている会社であるか否か、等についての明確な記載。
- .2 乗組員の人数と階級/資格に加え、何らかの特別条件その他の注意事項を記載した表。
- .3 附属書 1 及び 2 に記載の原則と指針に従って、航海する時はいつも、記載された特記事項に従い、少なくとも証書に記載された乗組員の人数を配乗すれば、証書を与えられた船舶は、安全に配員されていると見なせるとの、主管庁の公式声明。
- .4 従事する運航業務と船舶の特徴について証書の制限と有効性に関する説明。
- .5 証書の発行日と満了日とともに、主管庁の署名と公印

2 最小安全配員証書は、本附属書の付録に掲げたモデル様式に対応する書式で作成することが望ましい。英語以外の言語で証書を作成する場合は、英文併記すること。

付録

最小安全配員証書のモデル様式

最小安全配員証書

(省略)

附属書 5

最小安全配員決定のための枠組

序言

この枠組は、最小安全配員の決定について、主管庁と会社を支援するために策定された。

最小安全配員決定のための手順

1 会社からの申請書提出

1.1 最小安全配員のための船舶の運航の種類を定義する会社からの申請の提出。

1.2 申請書の提出に当たっては、船舶の安全、保安と海洋環境保護機能を管理する観点から、附属書 2 及び附属書 3 の要件を勘案する必要がある。

1.3 以下に概説するプロセスにより、会社は、乗組員の作業量ひいては提起された最小安全配員のレベルに影響するさまざまな作業要因の間の相互依存性や相互作用について、より深い洞察を得ることができるようになる。

作業機能

1.4 プロセスを始めるには、まず作業上要因を機能別に分類しなければならない。附属書 2 には検討すべき関連機能についての指針が記載されているが、同リストはそれだけに限られたものではない。次に、各機能は以下に掲げる属性を含む職務リストに分類することができる。

- .1 **期間**：それぞれの仕事の遂行にはどれほどの時間が必要か？ この場合の時間とは、仕事の完了までに費やされた実際の期間と比較した場合の、人・時の合計計測値である。というのは、仕事によっては複数人で行うために短時間で完了するものもあるからである。
- .2 **頻度**：当該の仕事はどの程度の頻度で行われるか？ これは標準的な間隔（例：1時間ごと、毎日、1週間ごと等）を用いて分類することができる。
- .3 **能力**：当該の仕事を実行するにはどのような技能、訓練及び資格が必要とされるであろうか？

- 4 **重要性**：仕事をうまく遂行できなかった場合にはどのようなリスクまたは結果が生ずるだろうか？

作業要因

1.5 一つの機能を具体的な職務およびそれらの属性に分類したら、次は、それぞれの仕事を遂行するのに必要となる人員の具体的な技能、作業の方針・手順及び基盤施設・技術を決定する必要がある。その際に大切なことは、技術・自動化をもたらす特定能力が入手利用できる否か、そして適切な手順の有無次第で、これらの要因が配員レベルを増減させる可能性があることを認識することである。

職務能力

1.6 作業要因と機能を定義する際に生み出された情報は、現実的な作業条件の範囲内で一人の個人がどれだけ多くの職務を遂行できるかを決定するのに用いられることになる。このステップを行うに際して考慮すべき特に重要なことは、人的要因の限界とそれに関連する基準や規則である。これらには、睡眠及び 24 時間周期の人体生理に関する要件、それぞれの職務に関わる肉体的・精神的な仕事量、そして騒音、温度、毒素など船内の環境条件に身をさらす際の限度などが含まれる。

仕事量の査定

1.7 作業機能、作業要因及び職務能力に関連するステップを実施した後、情報は、仕事量に関連する国内及び国際規則で規定された最小の休息及び・又は労働時間を超えていないかどうかを判定するために用いられる。このステップを行うに際して考慮すべきこととしては、労働期間の長さ、就労スケジュールの設計、及び、一労働日当たりの一定労働期間に課された職務を一人の乗組員が遂行できるかどうか、などがある。

2 主官庁による評価

2.1 会社が提出した申請書を、主官庁は関連する国内及び国際的規制要件や指針に照らして評価・承認する。

2.2 申請書を評価・承認した主官庁は、特別要件及び条件を含む最小安全配員証書を発行する。

3 最小安全配員証書の維持

最小安全配員に影響する何らかの変更が起こった場合、会社は主官庁に対しその旨を通告しなければならないが、その場合には附属書 3 を勘案した新しい申請書を提出する。

4 遵守状況の監視

主官庁は、最小安全配員計画を定期的に見直さなければならない。

附属書 6
改正 1974 年海上人命安全条約の改正草案

第 V 章
航行の安全

第 14 規則

人員の配置

1 既存の第 2 項は、次の新項目に差し替えられる。

2 第 I 章適用のすべての船舶に関して、主官庁は、

.1 機関*によって採択された関連指針を勘案しつつ透明な手続きに従って、適切な最小安全配員を確立しなければならない。そして

.2 第 1 項の規定を遵守するのに必要と看做される最小安全配員の証拠として、適切な最小安全配員証書を発行しなければならない。

* 機関の決議 A.....(27)によって採択された最小安全配員の原則を参照のこと。

STW 42 の暫定議題草案

開会

- 1 議題採択
- 2 他の IMO 機関の決定事項
- 3 モデル訓練課程の承認
- 4 資格証明書に関する不正行為
- 5 海難分析
- 6 e-Navigation 戦略実行計画の策定
- 7 船上の閉鎖区画に立入る際の勧告事項の改訂
- 8 船内緊急事態への対応策実施モデル手続きの策定
- 9 リカバリー・システムの訓練基準の策定
- 10 二年間及び二年間後の協議事項及び STW 43 の暫定協議事項
- 11 2012 年の議長及び副議長選出
- 12 その他の議題
- 13 海上安全委員会への報告

II 部

REPORT TO THE MARITIME SAFETY COMMITTEE

ANNEX 2

CHAPTER V

CHAPTER VI

CHAPTER VII

CHAPTER VIII

ANNEX 3

ANNEX 4

ANNEX 5

ANNEX 6

ANNEX 7

ANNEX 8

CHAPTER V

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

Section A-V/1-1

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

Standard of competence

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

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-1; and
- .2 provide evidence of having achieved:
 - .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-1, and
 - .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-1.

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

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-1-2; and
- .2 provide evidence of having achieved:
 - .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-2, and
 - .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-2.

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

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

- .2 provide evidence of having achieved:
 - .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-1-3, and
 - .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-1-3.

Table A-V/1-1-1
Specification of minimum standard of competence in basic training for oil and chemical tanker cargo operations

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the safe cargo operation of oil and chemical tankers	<p>Basic knowledge of tankers:</p> <ul style="list-style-type: none"> .1 types of oil and chemical tankers .2 general arrangement and construction <p>Basic knowledge of cargo operations:</p> <ul style="list-style-type: none"> .1 piping systems and valves .2 cargo pumps .3 loading and unloading .4 tank cleaning, purging, gas-freeing and inerting <p>Basic knowledge of the physical properties of oil and chemicals:</p> <ul style="list-style-type: none"> .1 pressure and temperature, including vapour pressure/temperature relationship .2 types of electrostatic charge generation .3 chemical symbols <p>Knowledge and understanding of tanker safety culture and safety management</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Communications within the area of responsibility are clear and effective</p> <p>Cargo operations are carried out in accordance with accepted principles and procedures to ensure safety of operations</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Take precautions to prevent hazards</p>	<p>Basic knowledge of the hazards associated with tanker operations, including:</p> <ul style="list-style-type: none"> .1 health hazards .2 environmental hazards .3 reactivity hazards .4 corrosion hazards .5 explosion and flammability hazards .6 sources of ignition, including electrostatic hazards .7 toxicity hazards .8 vapour leaks and clouds <p>Basic knowledge of hazard controls:</p> <ul style="list-style-type: none"> .1 inerting, water padding, drying agents and monitoring techniques .2 anti-static measures .3 ventilation .4 segregation .5 cargo inhibition .6 importance of cargo compatibility .7 atmospheric control .8 gas testing <p>Understanding of information on a Material Safety Data Sheet (MSDS)</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Correctly identifies, on an MSDS, relevant cargo-related hazards to the vessel and to personnel, and takes the appropriate actions in accordance with established procedures</p> <p>Identification and actions on becoming aware of a hazardous situation conform to established procedures in line with best practice</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Apply occupational health and safety precautions and measures</p>	<p>Function and proper use of gas-measuring instruments and similar equipment</p> <p>Proper use of safety equipment and protective devices, including:</p> <ul style="list-style-type: none"> .1 breathing apparatus and tank-evacuating equipment .2 protective clothing and equipment .3 resuscitators .4 rescue and escape equipment <p>Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety relevant to oil and chemical tankers, including:</p> <ul style="list-style-type: none"> .1 precautions to be taken when entering enclosed spaces .2 precautions to be taken before and during repair and maintenance work .3 safety measures for hot and cold work .4 electrical safety .5 ship/shore safety checklist <p>Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Procedures for entry into enclosed spaces are observed.</p> <p>Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times</p> <p>Appropriate safety and protective equipment is correctly used</p> <p>First aid do's and don'ts</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Carry out fire-fighting operations	<p>Tanker fire response organization and action to be taken</p> <p>Fire hazards associated with cargo handling and transportation of hazardous and noxious liquids in bulk</p> <p>Fire-fighting agents used to extinguish oil and chemical fires</p> <p>Fixed fire-fighting foam system operations</p> <p>Portable fire-fighting foam operations</p> <p>Fixed dry chemical system operations</p> <p>Spill containment in relation to fire-fighting operations</p>	<p>Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g., simulated shipboard conditions) and, whenever possible and practicable, in darkness</p>	<p>Initial actions and follow-up actions on becoming aware of fire on board conform with established practices and procedures</p> <p>Action taken on identifying muster signal is appropriate to the indicated emergency and complies with established procedures</p> <p>Clothing and equipment are appropriate to the nature of the fire-fighting operations</p> <p>The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions</p> <p>Extinguishment of fire is achieved using appropriate procedures, techniques and fire-fighting agents</p>
Respond to emergencies	<p>Basic knowledge of emergency procedures, including emergency shutdown</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>The type and impact of the emergency is promptly identified and the response actions conform to the emergency procedures and contingency plans</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Take precautions to prevent pollution of the environment from the release of oil or chemicals</p>	<p>Basic knowledge of the effects of oil and chemical pollution on human and marine life</p> <p>Basic knowledge of shipboard procedures to prevent pollution</p> <p>Basic knowledge of measures to be taken in the event of spillage, including the need to:</p> <ul style="list-style-type: none"> .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Procedures designed to safeguard the environment are observed at all times</p>

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ability to safely perform and monitor all cargo operations	<p><i>Design and characteristics of an oil tanker</i></p> <p>Knowledge of oil tanker design, systems and equipment, including:</p> <ul style="list-style-type: none"> .1 general arrangement and construction .2 pumping arrangement and equipment .3 tank arrangement, pipeline system and tank venting arrangement .4 gauging systems and alarms .5 cargo heating systems .6 tank cleaning, gas-freeing and inerting systems .7 ballast system .8 cargo area venting and accommodation ventilation .9 slop arrangements .10 vapour recovery systems .11 cargo-related electrical and electronic control system .12 environmental protection equipment, including Oil Discharge Monitoring Equipment (ODME) 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Communications are clear, understood and successful</p> <p>Cargo operations are carried out in a safe manner, taking into account oil tanker designs, systems and equipment</p> <p>Cargo operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and avoid pollution of the marine environment</p> <p>Potential non-compliance with cargo-operation-related procedures is promptly identified and rectified</p> <p>Proper loading, stowage and unloading of cargoes ensures that stability and stress conditions remain within safe limits at all times</p> <p>Actions taken and procedures followed are correctly applied and the appropriate shipboard cargo-related equipment is properly used</p> <p>Calibration and use of monitoring and gas-detection equipment comply with operational practices and procedures</p>

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

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take precautions to prevent hazards	<p>Knowledge and understanding of the hazards and control measures associated with oil tanker cargo operations, including:</p> <ul style="list-style-type: none"> .1 toxicity .2 flammability and explosion .3 health hazards .4 inert gas composition .5 electrostatic hazards <p>Knowledge and understanding of dangers of non-compliance with relevant rules/regulations</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Relevant cargo-related hazards to the vessel and to personnel associated with oil tanker cargo operations are correctly identified, and proper control measures are taken</p>
Apply occupational health and safety precautions	<p>Knowledge and understanding of safe working practices, including risk assessment and personal shipboard safety relevant to oil tankers:</p> <ul style="list-style-type: none"> .1 precautions to be taken when entering enclosed spaces, including correct use of different types of breathing apparatus .2 precautions to be taken before and during repair and maintenance work .3 precautions for hot and cold work .4 precautions for electrical safety .5 use of appropriate Personal Protective Equipment (PPE) 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Procedures designed to safeguard personnel and the ship are observed at all times</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used</p> <p>Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns</p> <p>Correct use of breathing apparatus</p> <p>Procedures for entry into enclosed spaces are observed</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies	<p>Knowledge and understanding of oil tanker emergency procedures, including:</p> <ul style="list-style-type: none"> .1 ship emergency response plans .2 cargo operations emergency shutdown .3 actions to be taken in the event of failure of systems or services essential to cargo .4 fire-fighting on oil tankers .5 enclosed space rescue .6 use of a Material Safety Data Sheet (MSDS) <p>Actions to be taken following collision, grounding, or spillage</p> <p>Knowledge of medical first aid procedures on board oil tankers</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>The type and impact of the emergency is promptly identified and the response actions conform with established emergency procedures and contingency plans</p> <p>The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem</p> <p>Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly</p> <p>The identification of and actions taken in a medical emergency conform to current recognized first aid practice and international guidelines</p>
Take precautions to prevent pollution of the environment	<p>Understanding of procedures to prevent pollution of the atmosphere and the environment</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Operations are conducted in accordance with accepted principles and procedures to prevent pollution of the environment</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and control compliance with legislative requirements	Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL), as amended, and other relevant IMO instruments, industry guidelines and port regulations as commonly applied	Examination and assessment of evidence obtained from one or more of the following: <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	The handling of cargoes complies with relevant IMO instruments and established industrial standards and codes of safe working practice

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ability to safely perform and monitor all cargo operations	<p><i>Design and characteristics of a chemical tanker</i></p> <p>Knowledge of chemical tanker designs, systems, and equipment, including:</p> <ul style="list-style-type: none"> .1 general arrangement and construction .2 pumping arrangement and equipment .3 tank construction and arrangement .4 pipeline and drainage systems .5 tank and cargo pipeline pressure and temperature control systems and alarms .6 gauging control systems and alarms .7 gas-detecting systems .8 cargo heating and cooling systems .9 tank cleaning systems .10 cargo tank environmental control systems .11 ballast systems .12 cargo area venting and accommodation ventilation .13 vapour return/recovery systems .14 fire-fighting systems 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Communications are clear, understood and successful</p> <p>Cargo operations are carried out in a safe manner, taking into account chemical tanker designs, systems and equipment</p> <p>Cargo operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and avoid pollution of the marine environment</p>

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

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Familiarity with physical and chemical properties of chemical cargoes	<p>Knowledge and understanding of the chemical and the physical properties of noxious liquid substances, including:</p> <ul style="list-style-type: none"> .1 chemical cargoes categories (corrosive, toxic, flammable, explosive) .2 chemical groups and industrial usage .3 reactivity of cargoes <p>Understanding the information contained in a Material Safety Data Sheet (MSDS)</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Effective use is made of information resources for identification of properties and characteristics of noxious liquid substances and related gases, and their impact on safety, environmental protection and vessel operation</p>
Take precautions to prevent hazards	<p>Knowledge and understanding of the hazards and control measures associated with chemical tanker cargo operations, including:</p> <ul style="list-style-type: none"> .1 flammability and explosion .2 toxicity .3 health hazards .4 inert gas composition .5 electrostatic hazards .6 reactivity .7 corrosivity .8 low-boiling-point cargoes .9 high-density cargoes .10 solidifying cargoes .11 polymerizing cargoes 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Relevant cargo-related hazards to the vessel and to personnel associated with chemical tanker cargo operations are correctly identified, and proper control measures are taken</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	Knowledge and understanding of dangers of non-compliance with relevant rules/regulations		
Apply occupational health and safety precautions	<p>Knowledge and understanding of safe working practices, including risk assessment and personal shipboard safety relevant to chemical tankers:</p> <ul style="list-style-type: none"> .1 precautions to be taken when entering enclosed spaces, including correct use of different types of breathing apparatus .2 precautions to be taken before and during repair and maintenance work .3 precautions for hot and cold work .4 precautions for electrical safety .5 use of appropriate Personal Protective Equipment (PPE) 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Procedures designed to safeguard personnel and the ship are observed at all times</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used</p> <p>Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns</p> <p>Correct use of breathing apparatus</p> <p>Procedures for entry into enclosed spaces are observed</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies	<p>Knowledge and understanding of chemical tanker emergency procedures, including:</p> <ul style="list-style-type: none"> .1 ship emergency response plans .2 cargo operations emergency shutdown .3 actions to be taken in the event of failure of systems or services essential to cargo .4 fire fighting on chemical tankers .5 enclosed space rescue .6 cargo reactivity .7 jettisoning cargo .8 use of a Material Safety Data Sheet (MSDS) <p>Actions to be taken following collision, grounding, or spillage</p> <p>Knowledge of medical first aid procedures on board chemical tankers, with reference to the Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG)</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>The type and impact of the emergency is promptly identified and the response actions conform with established emergency procedures and contingency plans</p> <p>The order of priority, and the levels and time-scales of making reports and informing personnel on board, are relevant to the nature of the emergency and reflect the urgency of the problem</p> <p>Evacuation, emergency shutdown and isolation procedures are appropriate to the nature of the emergency and are implemented promptly</p> <p>The identification of and actions taken in a medical emergency conform to current recognized first aid practice and international guidelines</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take precautions to prevent pollution of the environment	Understanding of procedures to prevent pollution of the atmosphere and the environment	Examination and assessment of evidence obtained from one or more of the following: <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	Operations are conducted in accordance with accepted principles and procedures to prevent pollution of the environment
Monitor and control compliance with legislative requirements	Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL) and other relevant IMO instruments, industry guidelines and port regulations as commonly applied Proficiency in the use of the IBC Code and related documents	Examination and assessment of evidence obtained from one or more of the following: <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	The handling of cargoes complies with relevant IMO instruments and established industrial standards and codes of safe working practice

Section A-V/1-2

Mandatory minimum requirements for the training and qualifications of masters, officers and ratings on liquefied gas tankers

Standard of competence

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

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-2-1; and
- .2 provide evidence of having achieved:
 - .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-2-1, and
 - .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-2-1.

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

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/1-2-2; and
- .2 provide evidence of having achieved:
 - .2.1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/1-2-2, and
 - .2.2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/1-2-2.

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

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

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

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	Basic knowledge of first aid with reference to a Material Safety Data Sheet (MSDS)		First aid do's and don'ts
Carry out fire-fighting operations	<p>Tanker fire organization and action to be taken</p> <p>Special hazards associated with cargo handling and transportation of liquefied gases in bulk</p> <p>Fire-fighting agents used to extinguish gas fires</p> <p>Fixed fire-fighting foam system operations</p> <p>Portable fire-fighting foam operations</p> <p>Fixed dry chemical system operations</p> <p>Basic knowledge of spill containment in relation to fire-fighting operations</p>	<p>Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. simulated shipboard conditions) and, whenever possible and practicable, in darkness</p>	<p>Initial actions and follow-up actions on becoming aware of an emergency conform with established practices and procedures</p> <p>Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures</p> <p>Clothing and equipment are appropriate to the nature of the fire-fighting operations</p> <p>The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions</p> <p>Extinguishment of fire is achieved using appropriate procedures, techniques and fire-fighting agents</p>
Respond to emergencies	Basic knowledge of emergency procedures, including emergency shutdown	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	The type and impact of the emergency is promptly identified and the response actions conform to the emergency procedures and contingency plans

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Take precautions to prevent pollution of the environment from the release of liquefied gases</p>	<p>Basic knowledge of the effects of pollution on human and marine life</p> <p>Basic knowledge of shipboard procedures to prevent pollution</p> <p>Basic knowledge of measures to be taken in the event of spillage, including the need to:</p> <ul style="list-style-type: none"> .1 report relevant information to the responsible persons .2 assist in implementing shipboard spill-containment procedures .3 prevent brittle fracture 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Procedures designed to safeguard the environment are observed at all times</p>

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Ability to safely perform and monitor all cargo operations</p>	<p><i>Design and characteristics of a liquefied gas tanker</i></p> <p>Knowledge of liquefied gas tanker design, systems, and equipment, including:</p> <ul style="list-style-type: none"> .1 types of liquefied gas tankers and cargo tanks construction .2 general arrangement and construction .3 cargo containment systems, including materials of construction and insulation .4 cargo-handling equipment and instrumentation, including: <ul style="list-style-type: none"> .1 cargo pumps and pumping arrangements .2 cargo pipelines and valves .3 expansion devices .4 flame screens .5 temperature monitoring systems .6 cargo tank level-gauging systems .7 tank pressure monitoring and control systems .5 cargo temperature maintenance system 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Communications are clear, understood and successful</p> <p>Cargo operations are carried out in a safe manner, taking into account liquefied gas tanker designs, systems and equipment</p> <p>Pumping operations are carried out in accordance with accepted principles and procedures and are relevant to the type of cargo</p> <p>Cargo operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and avoid pollution of the marine environment</p>

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

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ability to safely perform and monitor all cargo operations <i>(continued)</i>	Proficiency to apply safe preparations, procedures and checklists for all cargo operations, including: <ul style="list-style-type: none"> .1 post docking and loading: <ul style="list-style-type: none"> .1 tank inspection .2 inerting (O₂ reduction, dewpoint reduction) .3 gassing-up .4 cooling down .5 loading .6 deballasting .7 sampling, including closed-loop sampling .2 sea passage: <ul style="list-style-type: none"> .1 cooling down .2 pressure maintenance .3 boil-off .4 inhibiting .3 unloading: <ul style="list-style-type: none"> .1 unloading .2 ballasting .3 stripping and cleaning systems .4 systems to make the tank liquid-free .4 pre-docking preparation: <ul style="list-style-type: none"> .1 warm-up .2 inerting .3 gas-freeing .5 ship-to-ship transfer 		Calibration and use of monitoring and gas-detection equipment is consistent with safe operational practices and procedures Procedures for monitoring and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established procedures

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Ability to safely perform and monitor all cargo operations (continued)</p>	<p>Proficiency to perform cargo measurements and calculations, including:</p> <ol style="list-style-type: none"> .1 liquid phase .2 gas phase .3 On Board Quantity (OBQ) .4 Remain On Board (ROB) .5 boil-off cargo calculations <p>Proficiency to manage and supervise personnel with cargo-related responsibilities</p>		<p>Personnel are allocated duties and informed of procedures and standards of work to be followed, in a manner appropriate to the individuals concerned and in accordance with safe operational practices</p>
<p>Familiarity with physical and chemical properties of liquefied gas cargoes</p>	<p>Knowledge and understanding of basic chemistry and physics and the relevant definitions related to the safe carriage of liquefied gases in bulk in ships, including:</p> <ol style="list-style-type: none"> .1 the chemical structure of gases .2 the properties and characteristics of liquefied gases (including CO₂) and their vapours, including: <ol style="list-style-type: none"> .1 simple gas laws .2 states of matter .3 liquid and vapour densities .4 diffusion and mixing of gases .5 compression of gases .6 reliquefaction and refrigeration of gases 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Effective use is made of information resources for identification of properties and characteristics of liquefied gases and their impact on safety, environmental protection and vessel operation</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Familiarity with physical and chemical properties of liquefied gas cargoes <i>(continued)</i>	<ul style="list-style-type: none"> .7 critical temperature of gases and pressure .8 flashpoint, upper and lower explosive limits, auto-ignition temperature .9 compatibility, reactivity and positive segregation of gases .10 polymerization .11 saturated vapour pressure/reference temperature .12 dewpoint and bubble point .13 lubrication of compressors .14 hydrate formation .3 the properties of single liquids .4 the nature and properties of solutions .5 thermodynamic units .6 basic thermodynamic laws and diagrams .7 properties of materials .8 effect of low temperature – brittle fracture Understanding the information contained in a Material Safety Data Sheet (MSDS) 		

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Take precautions to prevent hazards</p>	<p>Knowledge and understanding of the hazards and control measures associated with liquefied gas tanker cargo operations, including:</p> <ul style="list-style-type: none"> .1 flammability .2 explosion .3 toxicity .4 reactivity .5 corrosivity .6 health hazards .7 inert gas composition .8 electrostatic hazards .9 polymerizing cargoes <p>Proficiency to calibrate and use monitoring and gas-detection systems, instruments and equipment</p> <p>Knowledge and understanding of dangers of non-compliance with relevant rules/regulations</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Relevant cargo-related hazards to the vessel and to personnel associated with liquefied gas tanker cargo operations are correctly identified, and proper control measures are taken</p> <p>Use of gas-detection devices is in accordance with manuals and good practice</p>
<p>Apply occupational health and safety precautions</p>	<p>Knowledge and understanding of safe working practices, including risk assessment and personal shipboard safety relevant to liquefied gas tankers, including:</p> <ul style="list-style-type: none"> .1 precautions to be taken when entering enclosed spaces (such as compressor rooms), including the correct use of different types of breathing apparatus 	<p>Assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Procedures designed to safeguard personnel and the ship are observed at all times</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used</p> <p>Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns</p> <p>Correct use of breathing apparatus</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply occupational health and safety precautions (continued)	<ul style="list-style-type: none"> .2 precautions to be taken before and during repair and maintenance work, including work affecting pumping, piping, electrical and control systems .3 precautions for hot and cold work .4 precautions for electrical safety .5 use of appropriate Personal Protective Equipment (PPE) .6 precautions for cold burn and frostbite .7 proper use of personal toxicity monitoring equipment 		
Respond to emergencies	Knowledge and understanding of liquefied gas tanker emergency procedures, including: <ul style="list-style-type: none"> .1 ship emergency response plans .2 cargo operations emergency shutdown procedure .3 emergency cargo valve operations .4 actions to be taken in the event of failure of systems or services essential to cargo operations .5 fire-fighting on liquefied gas tankers .6 jettisoning of cargo .7 enclosed space rescue 	Assessment of evidence obtained from one or more of the following: <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	The type and impact of emergency is promptly identified and the response actions conform with established emergency procedures and contingency plans The order of priority and the levels and timescales of making reports and informing personnel on board are relevant to the nature of the emergency and reflect the urgency of the problem Evacuation, emergency shutdown and isolation are appropriate to the nature of the emergency and implemented promptly

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies (continued)	<p>Actions to be taken following collision, grounding or spillage and envelopment of the ship in toxic or flammable vapour</p> <p>Knowledge of medical first-aid procedures and antidotes on board liquefied gas tankers, with reference to the Medical First Aid Guide for Use in Accidents involving Dangerous Goods (MFAG)</p>		The identification of and actions taken in a medical emergency conform to current recognized first aid practice and international guidelines
Take precautions to prevent pollution of the environment	Understanding of procedures to prevent pollution of the environment	<p>Assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	Operations are conducted in accordance with accepted principles and procedures to prevent pollution of the environment
Monitor and control compliance with legislative requirements	<p>Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL) and other relevant IMO instruments, industry guidelines and port regulations as commonly applied</p> <p>Proficiency in the use of the IBC and IGC Codes and related documents</p>	<p>Assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	The handling of liquefied gas cargoes complies with relevant IMO instruments and established industrial standards and codes of safe working practices

Section A-V/2

Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on passenger ships

Crowd management training

1 The crowd management training required by regulation V/2, paragraph 4 for personnel designated on muster lists to assist passengers in emergency situations shall include, but not necessarily be limited to:

- .1 awareness of life-saving appliance and control plans, including:
 - .1.1 knowledge of muster lists and emergency instructions,
 - .1.2 knowledge of the emergency exits, and
 - .1.3 restrictions on the use of elevators;
- .2 the ability to assist passengers en route to muster and embarkation stations, including:
 - .2.1 the ability to give clear reassuring orders,
 - .2.2 the control of passengers in corridors, staircases and passageways,
 - .2.3 maintaining escape routes clear of obstructions,
 - .2.4 methods available for evacuation of disabled persons and persons needing special assistance, and
 - .2.5 search of accommodation spaces;
- .3 mustering procedures, including:
 - .3.1 the importance of keeping order,
 - .3.2 the ability to use procedures for reducing and avoiding panic,
 - .3.3 the ability to use, where appropriate, passenger lists for evacuation counts, and
 - .3.4 the ability to ensure that the passengers are suitably clothed and have donned their lifejackets correctly.

Safety training for personnel providing direct service to passengers in passenger spaces

2 The additional safety training required by regulation V/2, paragraph 5, shall at least ensure attainment of the abilities as follows:

Communication

- .1 Ability to communicate with passengers during an emergency, taking into account:
 - .1.1 the language or languages appropriate to the principal nationalities of passengers carried on the particular route,
 - .1.2 the likelihood that an ability to use an elementary English vocabulary for basic instructions can provide a means of communicating with a passenger in need of assistance whether or not the passenger and crew member share a common language,
 - .1.3 the possible need to communicate during an emergency by some other means, such as by demonstration, or hand signals, or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes, when oral communication is impractical,
 - .1.4 the extent to which complete safety instructions have been provided to passengers in their native language or languages, and
 - .1.5 the languages in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers.

Life-saving appliances

- .2 Ability to demonstrate to passengers the use of personal life-saving appliances.

Embarkation procedures

- .3 embarking and disembarking passengers, with special attention to disabled persons and persons needing assistance.

Crisis management and human behaviour training

3 Masters, chief engineer officers, chief mates, second engineer officers and any person having responsibility for the safety of passengers in emergency situations shall:

- .1 have successfully completed the approved crisis management and human behaviour training required by regulation V/2, paragraph 6, in accordance with their capacity, duties and responsibilities as set out in table A-V/2; and
- .2 be required to provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/2.

Passenger safety, cargo safety and hull integrity training

4 The passenger safety, cargo safety and hull integrity training required by regulation V/2, paragraph 7, for masters, chief mates, chief engineer officers, second engineer officers and persons assigned immediate responsibility for embarking and disembarking passengers, for loading, discharging or securing cargo or for closing hull openings on board ro-ro passenger ships shall at least ensure attainment of the abilities that are appropriate to their duties and responsibilities as follows:

Loading and embarkation procedures

- .1 Ability to apply properly the procedures established for the ship regarding:
 - .1.1 loading and discharging vehicles, rail cars and other cargo transport units, including related communications,
 - .1.2 lowering and hoisting ramps,
 - .1.3 setting up and stowing retractable vehicle decks, and
 - .1.4 embarking and disembarking passengers, with special attention to disabled persons and persons needing assistance.

Carriage of dangerous goods

- .2 Ability to apply any special safeguards, procedures and requirements regarding the carriage of dangerous goods on board ro-ro passenger ships.

Securing cargoes

- .3 Ability to:
 - .3.1 apply correctly the provisions of the Code of Safe Practice for Cargo Stowage and Securing to the vehicles, rail cars and other cargo transport units carried, and
 - .3.2 use properly the cargo-securing equipment and materials provided, taking into account their limitations.

Stability, trim and stress calculations

- .4 Ability to:
 - .4.1 make proper use of the stability and stress information provided,
 - .4.2 calculate stability and trim for different conditions of loading, using the stability calculators or computer programs provided,

- .4.3 calculate load factors for decks, and
- .4.4 calculate the impact of ballast and fuel transfers on stability, trim and stress.

Opening, closing and securing hull openings

- .5 Ability to:
 - .5.1 apply properly the procedures established for the ship regarding the opening, closing and securing of bow, stern and side doors and ramps and to correctly operate the associated systems, and
 - .5.2 conduct surveys on proper sealing.

Ro-ro deck atmosphere

- .6 Ability to:
 - .6.1 use equipment, where carried, to monitor atmosphere in ro-ro cargo spaces, and
 - .6.2 apply properly the procedures established for the ship for ventilation of ro-ro cargo spaces during loading and discharging of vehicles, while on voyage and in emergencies.

Table A-V/2
**Specification of minimum standard of competence in crisis management
 and human behaviour**

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Organize shipboard emergency procedures	Knowledge of: <ol style="list-style-type: none"> .1 the general design and layout of the ship .2 safety regulations .3 emergency plans and procedures The importance of the principles for the development of ship-specific emergency procedures, including: <ol style="list-style-type: none"> .1 the need for pre-planning and drills of shipboard emergency procedures .2 the need for all personnel to be aware of and adhere to pre-planned emergency procedures as carefully as possible in the event of an emergency situation 	Assessment of evidence obtained from approved training, exercises with one or more prepared emergency plans and practical demonstration	The shipboard emergency procedures ensure a state of readiness to respond to emergency situations
Optimize the use of resources	Ability to optimize the use of resources, taking into account: <ol style="list-style-type: none"> .1 the possibility that resources available in an emergency may be limited .2 the need to make full use of personnel and equipment immediately available and, if necessary, to improvise Ability to organize realistic drills to maintain a state of readiness, taking into account lessons learnt from previous accidents involving passenger ships; debriefing after drills	Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures	Contingency plans optimize the use of available resources Allocation of tasks and responsibilities reflects the known competence of individuals Roles and responsibilities of teams and individuals are clearly defined

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control response to emergencies	<p>Ability to make an initial assessment and provide an effective response to emergency situations in accordance with established emergency procedures</p> <p><i>Leadership skills</i></p> <p>Ability to lead and direct others in emergency situations, including the need:</p> <ul style="list-style-type: none"> .1 to set an example during emergency situations .2 to focus decision making, given the need to act quickly in an emergency .3 to motivate, encourage and reassure passengers and other personnel <p><i>Stress handling</i></p> <p>Ability to identify the development of symptoms of excessive personal stress and those of other members of the ship's emergency team</p> <p>Understanding that stress generated by emergency situations can affect the performance of individuals and their ability to act on instructions and follow procedures</p>	<p>Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures</p>	<p>Procedures and actions are in accordance with established principles and plans for crisis management on board</p> <p>Objectives and strategy are appropriate to the nature of the emergency, take account of contingencies and make optimum use of available resources</p> <p>Actions of crew members contribute to maintaining order and control</p>
Control passengers and other personnel during emergency situations	<p><i>Human behaviour and responses</i></p> <p>Ability to control passengers and other personnel in emergency situations, including:</p>	<p>Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures</p>	<p>Actions of crew members contribute to maintaining order and control</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control passengers and other personnel during emergency situations <i>(continued)</i>	<p>.1 awareness of the general reaction patterns of passengers and other personnel in emergency situations, including the possibility that:</p> <p>.1.1 generally it takes some time before people accept the fact that there is an emergency situation</p> <p>.1.2 some people may panic and not behave with a normal level of rationality, that their ability to comprehend may be impaired and they may not be as responsive to instructions as in non-emergency situations</p> <p>.2 awareness that passengers and other personnel may, <i>inter alia</i>:</p> <p>.2.1 start looking for relatives, friends and/or their belongings as a first reaction when something goes wrong</p> <p>.2.2 seek safety in their cabins or in other places on board where they think that they can escape danger</p> <p>.2.3 tend to move to the upper side when the ship is listing</p> <p>.3 appreciation of the possible problem of panic resulting from separating families</p>		

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
<p>Establish and maintain effective communications</p>	<p>Ability to establish and maintain effective communications, including:</p> <ul style="list-style-type: none"> .1 the importance of clear and concise instructions and reports .2 the need to encourage an exchange of information with, and feedback from, passengers and other personnel <p>Ability to provide relevant information to passengers and other personnel during an emergency situation, to keep them apprised of the overall situation and to communicate any action required of them, taking into account:</p> <ul style="list-style-type: none"> .1 the language or languages appropriate to the principal nationalities of passengers and other personnel carried on the particular route .2 the possible need to communicate during an emergency by some other means, such as by demonstration, or by hand signals or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes, when oral communication is impractical .3 the language in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers 	<p>Assessment of evidence obtained from approved training, exercises and practical demonstration</p>	<p>Information from all available sources is obtained, evaluated and confirmed as quickly as possible and reviewed throughout the emergency</p> <p>Information given to individuals, emergency response teams and passengers is accurate, relevant and timely</p> <p>Information keeps passengers informed as to the nature of the emergency and the actions required of them</p>

CHAPTER VI

Emergency, occupational safety, security, medical care and survival functions

Section A-VI/1

Mandatory minimum requirements for safety familiarization, basic training and instruction for all seafarers

Safety familiarization training

1 Before being assigned to shipboard duties, all persons employed or engaged on a seagoing ship, other than passengers, shall receive approved familiarization training in personal survival techniques or receive sufficient information and instruction, taking account of the guidance given in part B, to be able to:

- .1 communicate with other persons on board on elementary safety matters and understand safety information symbols, signs and alarm signals;
- .2 know what to do if:
 - .2.1 a person falls overboard,
 - .2.2 fire or smoke is detected, or
 - .2.3 the fire or abandon ship alarm is sounded;
- .3 identify muster and embarkation stations and emergency escape routes;
- .4 locate and don lifejackets;
- .5 raise the alarm and have basic knowledge of the use of portable fire extinguishers;
- .6 take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board; and
- .7 close and open the fire, weathertight and watertight doors fitted in the particular ship other than those for hull openings.

Basic training*

2 Seafarers employed or engaged in any capacity on board ship on the business of that ship as part of the ship's complement with designated safety or pollution-prevention duties in the operation of the ship shall, before being assigned to any shipboard duties:

- .1 receive appropriate approved basic training or instruction in:
 - .1.1 personal survival techniques as set out in table A-VI/1-1,
 - .1.2 fire prevention and fire fighting as set out in table A-VI/1-2,
 - .1.3 elementary first aid as set out in table A-VI/1-3, and

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

.1.4 personal safety and social responsibilities as set out in table A-VI/1-4;

.2 be required to provide evidence of having achieved the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of tables A-VI/1-1, A-VI/1-2, A-VI/1-3 and A-VI/1-4 through:

.2.1 demonstration of competence, in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of those tables, and

.2.2 examination or continuous assessment as part of an approved training programme in the subjects listed in column 2 of those tables.

3 Seafarers qualified in accordance with paragraph 2 in basic training shall be required, every five years, to provide evidence of having maintained the required standards of competence, to undertake the tasks, duties and responsibilities listed in column 1 of tables A-VI/1-1 and A-VI/1-2.

4 Parties may accept onboard training and experience for maintaining the required standard of competence in the following areas:

.1 personal survival techniques as set out in table A-VI/1-1:

.1.1 don a lifejacket,

.1.2 board a survival craft from the ship, while wearing a lifejacket,

.1.3 take initial actions on boarding a lifeboat to enhance chance of survival,

.1.4 stream a lifeboat drogue or sea-anchor,

.1.5 operate survival craft equipment, and

.1.6 operate location devices, including radio equipment;

.2 fire prevention and fire fighting as set out in table A-VI/1-2:

.2.1 use self-contained breathing apparatus;

.2.2 effect a rescue in a smoke-filled space, using an approved smoke-generating device aboard, while wearing a breathing apparatus.

Exemptions

5 The Administration may, in respect of ships other than passenger ships of more than 500 gross tonnage engaged on international voyages and tankers, if it considers that a ship's size and the length or character of its voyage are such as to render the application of the full requirements of this section unreasonable or impracticable, exempt to that extent the seafarers on such a ship or class of ships from some of the requirements, bearing in mind the safety of people on board, the ship and property and the protection of the marine environment.

Table A-VI/1-1
Specification of minimum standard of competence in personal survival techniques

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Survive at sea in the event of ship abandonment	<p>Types of emergency situations which may occur, such as collision, fire, foundering</p> <p>Types of life-saving appliances normally carried on ships</p> <p>Equipment in survival craft</p> <p>Location of personal life-saving appliances</p> <p>Principles concerning survival, including:</p> <p>.1 value of training and drills</p> <p>.2 personal protective clothing and equipment</p> <p>.3 need to be ready for any emergency</p> <p>.4 actions to be taken when called to survival craft stations</p> <p>.5 actions to be taken when required to abandon ship</p> <p>.6 actions to be taken when in the water</p> <p>.7 actions to be taken when aboard a survival craft</p> <p>.8 main dangers to survivors</p>	<p>Assessment of evidence obtained from approved instruction or during attendance at an approved course or approved in-service experience and examination, including practical demonstration of competence to:</p> <p>.1 don a lifejacket</p> <p>.2 don and use an immersion suit</p> <p>.3 safely jump from a height into the water</p> <p>.4 right an inverted liferaft while wearing a lifejacket</p> <p>.5 swim while wearing a lifejacket</p> <p>.6 keep afloat without a lifejacket</p> <p>.7 board a survival craft from the ship and water while wearing a lifejacket</p> <p>.8 take initial actions on boarding survival craft to enhance chance of survival</p> <p>.9 stream a drogue or sea-anchor</p> <p>.10 operate survival craft equipment</p> <p>.11 operate location devices, including radio equipment</p>	<p>Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures</p> <p>The timing and sequence of individual actions are appropriate to the prevailing circumstance and conditions and minimize potential dangers and threats to survival</p> <p>Method of boarding survival craft is appropriate and avoids dangers to other survivors</p> <p>Initial actions after leaving the ship and procedures and actions in water minimize threats to survival</p>

Table A-VI/1-2
Specification of minimum standard of competence in fire prevention and fire fighting

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Minimize the risk of fire and maintain a state of readiness to respond to emergency situations involving fire	<p>Shipboard fire-fighting organization</p> <p>Location of fire-fighting appliances and emergency escape routes</p> <p>The elements of fire and explosion (the fire triangle)</p> <p>Types and sources of ignition</p> <p>Flammable materials, fire hazards and spread of fire</p> <p>The need for constant vigilance</p> <p>Actions to be taken on board ship</p> <p>Fire and smoke detection and automatic alarm systems</p> <p>Classification of fire and applicable extinguishing agents</p>	<p>Assessment of evidence obtained from approved instruction or attendance at an approved course</p>	<p>Initial actions on becoming aware of an emergency conform with accepted practices and procedures</p> <p>Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures</p>
Fight and extinguish fires	<p>Fire-fighting equipment and its location on board</p> <p>Instruction in:</p> <p>.1 fixed installations</p> <p>.2 fire-fighter's outfits</p> <p>.3 personal equipment</p> <p>.4 fire-fighting appliances and equipment</p> <p>.5 fire-fighting methods</p> <p>.6 fire-fighting agents</p> <p>.7 fire-fighting procedures</p>	<p>Assessment of evidence obtained from approved instruction or during attendance at an approved course, including practical demonstration in spaces which provide truly realistic training conditions (e.g., simulated shipboard conditions) and, whenever possible and practical, in darkness, of the ability to:</p> <p>.1 use various types of portable fire extinguishers</p> <p>.2 use self-contained breathing apparatus</p>	<p>Clothing and equipment are appropriate to the nature of the fire-fighting operations</p> <p>The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions</p> <p>Extinguishment of fire is achieved using appropriate procedures, techniques and fire-fighting agents</p> <p>Breathing apparatus procedures and techniques comply with accepted practices and procedures</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Fight and extinguish fires <i>(continued)</i>	.8 use of breathing apparatus for fighting fires and effecting rescues	.3 extinguish smaller fires, e.g., electrical fires, oil fires, propane fires .4 extinguish extensive fires with water, using jet and spray nozzles .5 extinguish fires with foam, powder or any other suitable chemical agent .6 enter and pass through, with lifeline but without breathing apparatus, a compartment into which high-expansion foam has been injected .7 fight fire in smoke-filled enclosed spaces wearing self-contained breathing apparatus .8 extinguish fire with water fog or any other suitable fire-fighting agent in an accommodation room or simulated engine-room with fire and heavy smoke .9 extinguish oil fire with fog applicator and spray nozzles, dry chemical powder or foam applicators .10 effect a rescue in a smoke-filled space wearing breathing apparatus	

Table A-VI/1-3
Specification of minimum standard of competence in elementary first aid

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take immediate action upon encountering an accident or other medical emergency	<p>Assessment of needs of casualties and threats to own safety</p> <p>Appreciation of body structure and functions</p> <p>Understanding of immediate measures to be taken in cases of emergency, including the ability to:</p> <p>.1 position casualty</p> <p>.2 apply resuscitation techniques</p> <p>.3 control bleeding</p> <p>.4 apply appropriate measures of basic shock management</p> <p>.5 apply appropriate measures in event of burns and scalds, including accidents caused by electric current</p> <p>.6 rescue and transport a casualty</p> <p>.7 improvise bandages and use materials in the emergency kit</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	<p>The manner and timing of raising the alarm is appropriate to the circumstances of the accident or medical emergency</p> <p>The identification of probable cause, nature and extent of injuries is prompt and complete and the priority and sequence of actions is proportional to any potential threat to life</p> <p>Risk of further harm to self and casualty is minimized at all times</p>

Table A-VI/1-4
**Specification of minimum standard of competence in personal safety
 and social responsibilities**

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Comply with emergency procedures	<p>Types of emergency which may occur, such as collision, fire, foundering</p> <p>Knowledge of shipboard contingency plans for response to emergencies</p> <p>Emergency signals and specific duties allocated to crew members in the muster list; muster stations; correct use of personal safety equipment</p> <p>Action to take on discovering potential emergency, including fire, collision, foundering and ingress of water into the ship</p> <p>Action to take on hearing emergency alarm signals</p> <p>Value of training and drills</p> <p>Knowledge of escape routes and internal communication and alarm systems</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	<p>Initial action on becoming aware of an emergency conforms to established emergency response procedures</p> <p>Information given on raising alarm is prompt, accurate, complete and clear</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take precautions to prevent pollution of the marine environment	<p>Basic knowledge of the impact of shipping on the marine environment and the effects of operational or accidental pollution on it</p> <p>Basic environmental protection procedures</p> <p>Basic knowledge of complexity and diversity of the marine environment</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Organizational procedures designed to safeguard the marine environment are observed at all times
Observe safe working practices	<p>Importance of adhering to safe working practices at all times</p> <p>Safety and protective devices available to protect against potential hazards aboard ship</p> <p>Precautions to be taken prior to entering enclosed spaces</p> <p>Familiarization with international measures concerning accident prevention and occupational health*</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times
Contribute to effective communications on board ship	<p>Understand the principles of, and barriers to, effective communication between individuals and teams within the ship</p> <p>Ability to establish and maintain effective communications</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Communications are clear and effective at all times

* The ILO Code of Practice on “Accident Prevention on Board Ship at Sea and in Port” may be of assistance in the preparation of courses.

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to effective human relationships on board ship	Importance of maintaining good human and working relationships aboard ship Basic teamworking principles and practice, including conflict resolution Social responsibilities; employment conditions; individual rights and obligations; dangers of drug and alcohol abuse	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Expected standards of work and behaviour are observed at all times
Understand and take necessary actions to control fatigue	Importance of obtaining the necessary rest Effects of sleep, schedules, and the circadian rhythm on fatigue Effects of physical stressors on seafarers Effects of environmental stressors in and outside the ship and their impact on seafarers Effects of schedule changes on seafarer fatigue	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Fatigue management practices are observed and appropriate actions are used at all times

Section A-VI/2

Mandatory minimum requirements for the issue of certificates of proficiency in survival craft, rescue boats and fast rescue boats

PROFICIENCY IN SURVIVAL CRAFT AND RESCUE BOATS OTHER THAN FAST RESCUE BOATS

Standard of competence

1 Every candidate for a certificate of proficiency in survival craft and rescue boats other than fast rescue boats shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-1.

2 The level of knowledge of the subjects listed in column 2 of table A-VI/2-1 shall be sufficient to enable the candidate to launch and take charge of a survival craft or rescue boat in emergency situations*.

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

4 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence through:

- .1 demonstration of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-1, in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of that table; and
- .2 examination or continuous assessment as part of an approved training programme covering the material set out in column 2 of table A-VI/2-1.

5 Seafarers qualified in accordance with paragraph 4 in survival craft and rescue boats other than fast rescue boats shall be required, every five years, to provide evidence of having maintained the required standards of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-1.

6 Parties may accept onboard training and experience for maintaining the required standard of competence of table A-VI/2-1 in the following areas:

- .1 take charge of a survival craft or rescue boat during and after launch:
 - .1.1 interpret the markings on survival craft as to the number of persons they are intended to carry;
 - .1.2 give correct commands for launching and boarding survival craft, clearing the ship and handling and disembarking persons from survival craft;
 - .1.3 prepare and safely launch survival craft and clear the ship's side quickly; and

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

- .1.4 safely recover survival craft and rescue boats;
- .2 manage survivors and survival craft after abandoning ship:
 - .2.1 row and steer a boat and steer by compass;
 - .2.2 use individual items of equipment of survival crafts, except for pyrotechnics, and
 - .2.3 rig devices to aid location;
- .3 use locating devices, including communication and signalling apparatus:
 - .3.1 use of portable radio equipment for survival craft;
- .4 apply first aid to survivors.

PROFICIENCY IN FAST RESCUE BOATS

Standard of competence

- 7 Every candidate for a certificate of proficiency in fast rescue boats shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-2.
- 8 The level of knowledge of the subjects listed in column 2 of table A-VI/2-2 shall be sufficient to enable the candidate to launch and take charge of a fast rescue boat in emergency situations* .
- 9 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take account of the guidance given in part B of this Code.
- 10 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence through:
- .1 demonstration of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-2, in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of that table; and
 - .2 examination or continuous assessment as part of an approved training programme covering the material set out in column 2 of table A-VI/2-2.
- 11 Seafarers qualified in accordance with paragraph 10 in fast rescue boats shall be required, every five years, to provide evidence of having maintained the required standards of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/2-2.

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

12 Parties may accept onboard training and experience for maintaining the required standard of competence of table A-VI/2-2, in the following areas:

- .1 Take charge of a fast rescue boat during and after launch:
 - .1.1 control safe launching and recovery of a fast rescue boat,
 - .1.2 handle a fast rescue boat in prevailing weather and sea conditions,
 - .1.3 use communications and signalling equipment between the fast rescue boat and a helicopter and a ship,
 - .1.4 use the emergency equipment carried; and
 - .1.5 carry out search patterns, taking account of environmental factors.

Table A-VI/2-1
**Specification of the minimum standard of competence in survival craft
 and rescue boats other than fast rescue boats**

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take charge of a survival craft or rescue boat during and after launch	<p>Construction and outfit of survival craft and rescue boats and individual items of their equipment</p> <p>Particular characteristics and facilities of survival craft and rescue boats</p> <p>Various types of device used for launching survival craft and rescue boats</p> <p>Methods of launching survival craft into a rough sea</p> <p>Methods of recovering survival craft</p> <p>Action to be taken after leaving the ship</p> <p>Methods of launching and recovering rescue boats in a rough sea</p> <p>Dangers associated with use of on-load release devices</p> <p>Knowledge of maintenance procedures</p>	<p>Assessment of evidence obtained from practical demonstration of ability to:</p> <p>.1 right an inverted liferaft while wearing a lifejacket</p> <p>.2 interpret the markings on survival craft as to the number of persons they are intended to carry</p> <p>.3 give correct commands for launching and boarding survival craft, clearing the ship and handling and disembarking persons from survival craft</p> <p>.4 prepare and safely launch survival craft and clear the ship's side quickly and operate off-load and on-load release devices</p> <p>.5 safely recover survival craft and rescue boats, including the proper resetting of both off-load and on-load release devices, using inflatable liferaft and open or enclosed lifeboat with inboard engine or approved simulator training, where appropriate</p>	<p>Preparation, boarding and launching of survival craft are within equipment limitations and enable survival craft to clear the ship safely</p> <p>Initial actions on leaving the ship minimize threat to survival</p> <p>Recovery of survival craft and rescue boats is within equipment limitations</p> <p>Equipment is operated in accordance with manufacturers' instructions for release and resetting</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate a survival craft engine	Methods of starting and operating a survival craft engine and its accessories together with the use of the fire extinguisher provided	Assessment of evidence obtained from practical demonstration of ability to start and operate an inboard engine fitted in an open or enclosed lifeboat	Propulsion is available and maintained as required for manoeuvring
Manage survivors and survival craft after abandoning ship	<p>Handling survival craft in rough weather</p> <p>Use of painter, sea-anchor and all other equipment</p> <p>Apportionment of food and water in survival craft</p> <p>Action taken to maximize detectability and location of survival craft</p> <p>Method of helicopter rescue</p> <p>Effects of hypothermia and its prevention; use of protective covers and garments, including immersion suits and thermal protective aids</p> <p>Use of rescue boats and motor lifeboats for marshalling liferafts and rescue of survivors and persons in the sea</p> <p>Beaching survival craft</p>	<p>Assessment of evidence obtained from practical demonstration of ability to:</p> <p>.1 row and steer a boat and steer by compass</p> <p>.2 use individual items of equipment of survival craft</p> <p>.3 rig devices to aid location</p>	Survival management is appropriate to prevailing circumstances and conditions
Use locating devices, including communication and signalling apparatus and pyrotechnics	<p>Radio life-saving appliances carried in survival craft, including satellite EPIRBs and SARTs</p> <p>Pyrotechnic distress signals</p>	<p>Assessment of evidence obtained from practical demonstration of ability to:</p> <p>.1 use portable radio equipment for survival craft</p> <p>.2 use signalling equipment, including pyrotechnics</p>	Use and choice of communication and signalling apparatus is appropriate to prevailing circumstances and conditions

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply first aid to survivors	Use of the first-aid kit and resuscitation techniques Management of injured persons, including control of bleeding and shock	Assessment of evidence obtained from practical demonstration of ability to deal with injured persons both during and after abandonment, using first-aid kit and resuscitation technique	Identification of the probable cause, nature and extent of injuries or condition is prompt and accurate Priority and sequence of treatment minimizes any threat to life

Table A-VI/2-2
Specification of the minimum standard of competence in fast rescue boats

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Understand the construction, maintenance, repair and outfitting of fast rescue boats	Construction and outfitting of fast rescue boats and individual items of their equipment Knowledge of the maintenance and emergency repairs of fast rescue boats and the normal inflation and deflation of buoyancy compartments of inflated fast rescue boats	Assessment of evidence obtained from practical instruction	The method of carrying out routine maintenance and emergency repairs Identify components and required equipment for fast rescue boats
Take charge of the launching equipment and appliance as commonly fitted, during launching and recovery	Assessment of the readiness of launching equipment and launching appliance of fast rescue boats for immediate launching and operation Understand the operation and limitations of the winch, brakes, falls, painters, motion-compensation and other equipment as commonly fitted Safety precautions during launching and recovery of a fast rescue boat Launching and recovery of a fast rescue boat in prevailing and adverse weather and sea conditions	Assessment of evidence obtained from practical demonstration of ability to control safe launching and recovery of a fast rescue boat, with equipment as fitted	Ability to prepare and take charge of the launching equipment and appliance during launching and recovery of a fast rescue boat
Take charge of a fast rescue boat as commonly fitted, during launching and recovery	Assessment of the readiness of fast rescue boats and related equipment for immediate launching and operation Safety precautions during launching and recovery of a fast rescue boat Launching and recovery of a fast rescue boat in prevailing and adverse weather and sea conditions	Assessment of evidence obtained from practical demonstration of ability to conduct safe launching and recovery of a fast rescue boat, with equipment as fitted	Ability to take charge of a fast rescue boat during launching and recovery

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take charge of a fast rescue boat after launching	<p>Particular characteristics, facilities and limitations of fast rescue boats</p> <p>Procedures for the righting of a capsized fast rescue boat</p> <p>How to handle a fast rescue boat in prevailing and adverse weather and sea conditions</p> <p>Navigational and safety equipment available in a fast rescue boat</p> <p>Search patterns and environmental factors affecting their execution</p>	<p>Assessment of evidence obtained from practical demonstration of ability to:</p> <ol style="list-style-type: none"> .1 right a capsized fast rescue boat .2 handle a fast rescue boat in prevailing weather and sea conditions .3 swim in special equipment .4 use communications and signalling equipment between the fast rescue boat and a helicopter and a ship .5 use the emergency equipment carried .6 recover a casualty from the water and transfer a casualty to a rescue helicopter or to a ship or to a place of safety .7 carry out search patterns, taking account of environmental factors 	<p>Demonstration of operation of fast rescue boats within equipment limitations in prevailing weather conditions</p>
Operate a fast rescue boat engine	Methods of starting and operating a fast rescue boat engine and its accessories	Assessment of evidence obtained from practical demonstration of ability to start and operate a fast rescue boat engine	Engine is started and operated as required for manoeuvring

Section A-VI/3

Mandatory minimum training in advanced fire fighting

Standard of competence

- 1 Seafarers designated to control fire-fighting operations shall have successfully completed advanced training in techniques for fighting fire, with particular emphasis on organization, tactics and command, and shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/3.
- 2 The level of knowledge and understanding of the subjects listed in column 2 of table A-VI/3 shall be sufficient for the effective control of fire-fighting operations on board ship*.
- 3 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take account of the guidance given in part B of this Code.
- 4 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 the criteria for evaluating competence tabulated in columns 3 and 4 of table A-VI/3.
- 5 Seafarers qualified in accordance with paragraph 4 in advanced fire fighting shall be required, every five years, to provide evidence of having maintained the required standards of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/3.
- 6 Parties may accept onboard training and experience for maintaining the required standard of competence of table A-VI/3, in the following areas:
 - .1 Control fire-fighting operations aboard ships;
 - .1.1 fire-fighting procedures at sea and in port, with particular emphasis on organization, tactics and command,
 - .1.2 communication and coordination during fire-fighting operations,
 - .1.3 ventilation control, including smoke extraction,
 - .1.4 control of fuel and electrical systems,
 - .1.5 fire-fighting process hazards (dry distillation, chemical reactions, boiler uptake),
 - .1.6 fire precautions and hazards associated with the storage and handling of materials,
 - .1.7 management and control of injured persons, and
 - .1.8 procedures for co-ordination with shore-based fire fighters.

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

Table A-VI/3
Specification of minimum standard of competence in advanced fire fighting

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control fire-fighting operations aboard ships	<p>Fire-fighting procedures at sea and in port, with particular emphasis on organization, tactics and command</p> <p>Use of water for fire-extinguishing, the effect on ship stability, precautions and corrective procedures</p> <p>Communication and co-ordination during fire-fighting operations</p> <p>Ventilation control, including smoke extraction</p> <p>Control of fuel and electrical systems</p> <p>Fire-fighting process hazards (dry distillation, chemical reactions, boiler uptake fires, etc.)</p> <p>Fire fighting involving dangerous goods</p> <p>Fire precautions and hazards associated with the storage and handling of materials (paints, etc.)</p> <p>Management and control of injured persons</p> <p>Procedures for co-ordination with shore-based fire fighters</p>	<p>Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g., simulated shipboard conditions) and, whenever possible and practicable, in darkness</p>	<p>Actions taken to control fires are based on a full and accurate assessment of the incident, using all available sources of information</p> <p>The order of priority, timing and sequence of actions are appropriate to the overall requirements of the incident and to minimize damage and potential damage to the ship, injuries to personnel and impairment of the operational effectiveness of the ship</p> <p>Transmission of information is prompt, accurate, complete and clear</p> <p>Personal safety during fire control activities is safeguarded at all times</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Organize and train fire parties	Preparation of contingency plans Composition and allocation of personnel to fire parties Strategies and tactics for control of fires in various parts of the ship	Practical exercises and instruction conducted under approved and truly realistic training conditions, e.g., simulated shipboard conditions	Composition and organization of fire control parties ensure the prompt and effective implementation of emergency plans and procedures
Inspect and service fire-detection and fire-extinguishing systems and equipment	Fire-detection systems; fixed fire-extinguishing systems; portable and mobile fire-extinguishing equipment, including appliances, pumps and rescue, salvage, life-support, personal protective and communication equipment Requirements for statutory and classification surveys	Practical exercises, using approved equipment and systems in a realistic training environment	Operational effectiveness of all fire-detection and fire-extinguishing systems and equipment is maintained at all times in accordance with performance specifications and legislative requirements
Investigate and compile reports on incidents involving fire	Assessment of cause of incidents involving fire	Practical exercises in a realistic training environment	Causes of fire are identified and the effectiveness of countermeasures is evaluated

Section A-VI/4

Mandatory minimum requirements related to medical first aid and medical care

Standard of competence for seafarers designated to provide medical first aid on board ship

1 Every seafarer who is designated to provide medical first aid on board ship shall be required to demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/4-1.

2 The level of knowledge of the subjects listed in column 2 of table A-VI/4-1 shall be sufficient to enable the designated seafarer to take immediate effective action in the case of accidents or illness likely to occur on board ship*.

3 Every candidate for certification under the provisions of regulation VI/4, paragraph 1 shall be required to provide evidence that the required standard of competence has been achieved in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-VI/4-1.

Standard of competence for seafarers designated to take charge of medical care on board ship

4 Every seafarer who is designated to take charge of medical care on board ship shall be required to demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/4-2.

5 The level of knowledge of the subjects listed in column 2 of table A-VI/4-2 shall be sufficient to enable the designated seafarer to take immediate effective action in the case of accidents or illness likely to occur on board ship*.

6 Every candidate for certification under the provisions of regulation VI/4, paragraph 2 shall be required to provide evidence that the required standard of competence has been achieved in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-VI/4-2.

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

Table A-VI/4-1
Specification of minimum standard of competence in medical first aid

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply immediate first aid in the event of accident or illness on board	First-aid kit Body structure and function Toxicological hazards on board, including use of the Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) or its national equivalent Examination of casualty or patient Spinal injuries Burns, scalds and effects of heat and cold Fractures, dislocations and muscular injuries Medical care of rescued persons Radio medical advice Pharmacology Sterilization Cardiac arrest, drowning and asphyxia	Assessment of evidence obtained from practical instruction	The identification of probable cause, nature and extent of injuries is prompt, complete and conforms to current first-aid practice Risk of harm to self and to others is minimized at all times Treatment of injuries and the patient's condition is appropriate and conforms to recognized first-aid practice and international guidelines

Table A-VI/4-2
Specification of minimum standard of competence in medical care

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Provide medical care to the sick and injured while they remain on board	Care of casualty involving: <ol style="list-style-type: none"> .1 head and spinal injuries .2 injuries of ear, nose, throat and eyes .3 external and internal bleeding .4 burns, scalds and frostbite .5 fractures, dislocations and muscular injuries .6 wounds, wound healing and infection .7 pain relief .8 techniques of sewing and clamping .9 management of acute abdominal conditions .10 minor surgical treatment .11 dressing and bandaging Aspects of nursing: <ol style="list-style-type: none"> .1 general principles .2 nursing care Diseases, including: <ol style="list-style-type: none"> .1 medical conditions and emergencies .2 sexually transmitted diseases .3 tropical and infectious diseases Alcohol and drug abuse	Assessment of evidence obtained from practical instruction and demonstration Where practicable, approved practical experience at a hospital or similar establishment	Identification of symptoms is based on the concepts of clinical examination and medical history Protection against infection and spread of diseases is complete and effective Personal attitude is calm, confident and reassuring Treatment of injury or condition is appropriate and conforms to accepted medical practice and relevant national and international medical guides The dosage and application of drugs and medication complies with manufacturers' recommendations and accepted medical practice The significance of changes in patient's condition is promptly recognized

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Provide medical care to the sick and injured while they remain on board (continued)	Dental care Gynaecology, pregnancy and childbirth Medical care of rescued persons Death at sea Hygiene Disease prevention, including: .1 disinfection, disinfestation, de-ratting .2 vaccinations Keeping records and copies of applicable regulations: .1 keeping medical records .2 international and national maritime medical regulations		
Participate in coordinated schemes for medical assistance to ships	External assistance, including: .1 radio medical advice .2 transportation of the ill and injured, including helicopter evacuation .3 medical care of sick seafarers involving co-operation with port health authorities or out-patient wards in port		Clinical examination procedures are complete and comply with instructions received The method and preparation for evacuation is in accordance with recognized procedures and is designed to maximize the welfare of the patient Procedures for seeking radio medical advice conform to established practice and recommendations

Section A-VI/5

Mandatory minimum requirements for the issue of certificates of proficiency for ship security officers

Standard of competence

1 Every candidate for a certificate of proficiency as a ship security officer shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/5.

2 The level of knowledge of the subjects listed in column 2 of table A-VI/5 shall be sufficient to enable the candidate to act as the designated ship security officer.

3 Training and experience to achieve the necessary level of theoretical knowledge, understanding and proficiency shall take into account the guidance in section B-VI/5 of this Code.

4 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 the criteria for evaluating competence tabulated in columns 3 and 4 of table A-VI/5.

Table A-VI/5
Specifications of minimum standards of competence for ship security officers

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain and supervise the implementation of a ship security plan	<p>Knowledge of international maritime security policy and responsibilities of Governments, companies and designated persons, including elements that may relate to piracy and armed robbery</p> <p>Knowledge of the purpose for and the elements that make up a ship security plan, related procedures and maintenance of records, including those that may relate to piracy and armed robbery</p> <p>Knowledge of procedures to be employed in implementing a ship security plan and reporting of security incidents</p> <p>Knowledge of maritime security levels and the consequential security measures and procedures aboard ship and in the port facility environment</p> <p>Knowledge of the requirements and procedures for conducting internal audits, on-scene inspections, control and monitoring of security activities specified in a ship security plan</p> <p>Knowledge of the requirements and procedures for reporting to the company security officer any deficiencies and non-conformities identified during internal audits, periodic reviews, and security inspections</p>	Assessment of evidence obtained from approved training or examination	<p>Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended</p> <p>Legislative requirements relating to security are correctly identified</p> <p>Procedures achieve a state of readiness to respond to changes in maritime security levels</p> <p>Communications within the ship security officer's area of responsibility are clear and understood</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain and supervise the implementation of a ship security plan <i>(continued)</i>	<p>Knowledge of the methods and procedures used to modify the ship security plan</p> <p>Knowledge of security-related contingency plans and the procedures for responding to security threats or breaches of security, including provisions for maintaining critical operations of the ship/port interface, including also elements that may relate to piracy and armed robbery</p> <p>Working knowledge of maritime security terms and definitions, including elements that may relate to piracy and armed robbery</p>		
Assess security risk, threat, and vulnerability	<p>Knowledge of risk assessment and assessment tools</p> <p>Knowledge of security assessment documentation, including the Declaration of Security</p> <p>Knowledge of techniques used to circumvent security measures, including those used by pirates and armed robbers</p> <p>Knowledge enabling recognition, on a non-discriminatory basis, of persons posing potential security risks</p> <p>Knowledge enabling recognition of weapons, dangerous substances and devices and awareness of the damage they can cause</p> <p>Knowledge of crowd management and control techniques, where appropriate</p>	<p>Assessment of evidence obtained from approved training, or approved experience and examination, including practical demonstration of competence to:</p> <ol style="list-style-type: none"> .1 conduct physical searches .2 conduct non-intrusive inspections 	<p>Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended</p> <p>Procedures achieve a state of readiness to respond to changes in the maritime security levels</p> <p>Communications within the ship security officer's area of responsibility are clear and understood</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Assess security risk, threat, and vulnerability <i>(continued)</i>	<p>Knowledge in handling sensitive security-related information and security-related communications</p> <p>Knowledge of implementing and co-ordinating searches</p> <p>Knowledge of the methods for physical searches and non-intrusive inspections</p>		
Undertake regular inspections of the ship to ensure that appropriate security measures are implemented and maintained	<p>Knowledge of the requirements for designating and monitoring restricted areas</p> <p>Knowledge of controlling access to the ship and to restricted areas on board ship</p> <p>Knowledge of methods for effective monitoring of deck areas and areas surrounding the ship</p> <p>Knowledge of security aspects relating to the handling of cargo and ship's stores with other shipboard personnel and relevant port facility security officers</p> <p>Knowledge of methods for controlling the embarkation, disembarkation and access while on board of persons and their effects</p>	Assessment of evidence obtained from approved training or examination	<p>Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended</p> <p>Procedures achieve a state of readiness to respond to changes in the maritime security levels</p> <p>Communications within the ship security officer's area of responsibility are clear and understood</p>
Ensure that security equipment and systems, if any, are properly operated, tested and calibrated	<p>Knowledge of the various types of security equipment and systems and their limitations, including those that could be used in case of attacks by pirates and armed robbers</p> <p>Knowledge of the procedures, instructions and guidance on the use of ship security alert systems</p> <p>Knowledge of the methods for testing, calibrating, and maintaining security systems and equipment, particularly whilst at sea</p>	Assessment of evidence obtained from approved training or examination	Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Encourage security awareness and vigilance	<p>Knowledge of training, drill and exercise requirements under relevant conventions, codes and IMO circulars, including those relevant to anti-piracy and anti-armed robbery</p> <p>Knowledge of the methods for enhancing security awareness and vigilance on board</p> <p>Knowledge of the methods for assessing the effectiveness of drills and exercises</p>	Assessment of evidence obtained from approved training or examination	<p>Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended</p> <p>Communications within the ship security officer's area of responsibility are clear and understood</p>

Section A-VI/6

Mandatory minimum requirements for security-related training and instruction for all seafarers

Standard of competence for security-related familiarization training

1 Before being assigned to shipboard duties, all persons employed or engaged on a seagoing ship which is required to comply with the provisions of the ISPS Code, other than passengers, shall receive approved security-related familiarization training, taking account of the guidance given in part B, to be able to:

- .1 report a security incident, including a piracy or armed robbery threat or attack;
- .2 know the procedures to follow when they recognize a security threat; and
- .3 take part in security-related emergency and contingency procedures.

2 Seafarers with designated security duties engaged or employed on a seagoing ship shall, before being assigned such duties, receive security-related familiarization training in their assigned duties and responsibilities, taking into account the guidance given in part B.

3 The security-related familiarization training shall be conducted by the ship security officer or an equally qualified person.

Standard of competence for security-awareness training

4 Seafarers employed or engaged in any capacity on board a ship which is required to comply with the provisions of the ISPS Code on the business of that ship as part of the ship's complement without designated security duties shall, before being assigned to any shipboard duties:

- .1 receive appropriate approved training or instruction in security awareness as set out in table A-VI/6-1;
- .2 be required to provide evidence of having achieved the required standard of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/6-1:
 - .2.1 by demonstration of competence, in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-VI/6-1; and
 - .2.2 by examination or continuous assessment as part of an approved training programme in the subjects listed in column 2 of table A-VI/6-1.

Transitional provisions

5 Until [date of entry into force plus 2 years], seafarers who commenced an approved seagoing service prior to the date of entry into force of this section shall be able to establish that they meet the requirements of paragraph 4 by:

- .1 approved seagoing service as shipboard personnel, for a period of at least six months in total during the preceding three years; or
- .2 having performed security functions considered to be equivalent to the seagoing service required in paragraph 5.1; or
- .3 passing an approved test; or
- .4 successfully completing approved training.

Standard of competence for seafarers with designated security duties

6 Every seafarer who is designated to perform security duties, including anti-piracy and anti-armed-robbery-related activities, shall be required to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/6-2.

7 The level of knowledge of the subjects in column 2 of table A-VI/6-2 shall be sufficient to enable every candidate to perform on board designated security duties, including anti-piracy and anti-armed-robbery-related activities.

8 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence through:

- .1 demonstration of competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/6-2, in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of that table; and
- .2 examination or continuous assessment as part of an approved training programme covering the material set out in column 2 of table A-VI/6-2.

Transitional provisions

9 Until [*date of entry into force + 2 years*], seafarers with designated security duties who commenced an approved seagoing service prior to the date of entry into force of this section shall be able to demonstrate competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/6-2 by:

- .1 approved seagoing service as shipboard personnel with designated security duties, for a period of at least six months in total during the preceding three years; or
- .2 having performed security functions considered to be equivalent to the seagoing service required in paragraph 9.1; or
- .3 passing an approved test; or
- .4 successfully completing approved training.

Table A-VI/6-1

Specification of minimum standard of competence in security awareness

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the enhancement of maritime security through heightened awareness	<p>Basic working knowledge of maritime security terms and definitions</p> <p>Basic working knowledge of maritime security terms and definitions, including elements that may relate to piracy and armed robbery</p> <p>Basic knowledge of international maritime security policy and responsibilities of Governments, companies and persons</p> <p>Basic knowledge of maritime security levels and their impact on security measures and procedures aboard ship and in port facilities</p> <p>Basic knowledge of security reporting procedures</p> <p>Basic knowledge of security-related contingency plans</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Requirements relating to enhanced maritime security are correctly identified

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Recognition of security threats	<p>Basic knowledge of techniques used to circumvent security measures</p> <p>Basic knowledge enabling recognition of potential security threats, including elements that may relate to piracy and armed robbery</p> <p>Basic knowledge enabling recognition of weapons, dangerous substances and devices and awareness of the damage they can cause</p> <p>Basic knowledge in handling security-related information and security-related communications</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Maritime security threats are correctly identified
Understanding of the need for and methods of maintaining security awareness and vigilance	Basic knowledge of training, drill and exercise requirements under relevant conventions, codes and IMO circulars, including those relevant for anti-piracy and anti-armed robbery	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Requirements relating to enhanced maritime security are correctly identified

Table A-VI/6-2
Specifications of minimum standards of competence for seafarers
with designated security duties

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain the conditions set forth in a ship security plan	<p>Working knowledge of maritime security terms and definitions, including elements that may relate to piracy and armed robbery</p> <p>Knowledge of international maritime security policy and responsibilities of Governments, companies and persons, including working knowledge of elements that may relate to piracy and armed robbery</p> <p>Knowledge of maritime security levels and their impact on security measures and procedures aboard ship and in the port facilities</p> <p>Knowledge of security reporting procedures</p> <p>Knowledge of procedures and requirements for drills and exercises under relevant conventions, codes and IMO circulars, including working knowledge of those that may relate to piracy and armed robbery</p> <p>Knowledge of the procedures for conducting inspections and surveys and for the control and monitoring of security activities specified in a ship security plan</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	<p>Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended</p> <p>Legislative requirements relating to security are correctly identified</p> <p>Communications within the area of responsibility are clear and understood</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Maintain the conditions set forth in a ship security plan (<i>continued</i>)	Knowledge of security-related contingency plans and the procedures for responding to security threats or breaches of security, including provisions for maintaining critical operations of the ship/port interface, and including also working knowledge of those that may relate to piracy and armed robbery		
Recognition of security risks and threats	<p>Knowledge of security documentation, including the Declaration of Security</p> <p>Knowledge of techniques used to circumvent security measures, including those used by pirates and armed robbers</p> <p>Knowledge enabling recognition of potential security threats</p> <p>Knowledge enabling recognition of weapons, dangerous substances and devices and awareness of the damage they can cause</p> <p>Knowledge of crowd management and control techniques, where appropriate</p> <p>Knowledge in handling security-related information and security-related communications</p> <p>Knowledge of the methods for physical searches and non-intrusive inspections</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Undertake regular security inspections of the ship	<p>Knowledge of the techniques for monitoring restricted areas</p> <p>Knowledge of controlling access to the ship and to restricted areas on board ship</p> <p>Knowledge of methods for effective monitoring of deck areas and areas surrounding the ship</p> <p>Knowledge of inspection methods relating to the cargo and ship's stores</p> <p>Knowledge of methods for controlling the embarkation, disembarkation and access while on board of persons and their effects</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended
Proper usage of security equipment and systems, if any	<p>General knowledge of various types of security equipment and systems, including those that could be used in case of attacks by pirates and armed robbers, including their limitations</p> <p>Knowledge of the need for testing, calibrating, and maintaining security systems and equipment, particularly whilst at sea</p>	Assessment of evidence obtained from approved instruction or during attendance at an approved course	<p>Equipment and systems operations are carried out in accordance with established equipment operating instructions and taking into account the limitations of the equipment and systems</p> <p>Procedures and actions are in accordance with the principles established by the ISPS Code and the SOLAS Convention, as amended</p>

CHAPTER VII

Standards regarding alternative certification

Section A-VII/1

Issue of alternative certificates

1 Every candidate for certification at the operational level under the provisions of chapter VII of the annex to the Convention shall be required to complete relevant education and training and meet the standard of competence for all the functions prescribed in either table A-II/1 or table A-III/1. Functions specified in tables A-II/1 or A-III/1 respectively may be added provided the candidate completes, as appropriate, additional relevant education and training and meets the standards of competence prescribed in those tables for the functions concerned.

2 Every candidate for certification at the management level as the person having command of a ship of 500 gross tonnage or more, or the person upon whom the command of such a ship will fall in the event of the incapacity of the person in command, shall be required, in addition to compliance with the standard of competence specified in table A-II/1, to complete relevant education and training and meet the standards of competence for all of the functions prescribed in table A-II/2. Functions specified in the tables of chapter III of this part may be added provided the candidate completes, as appropriate, additional relevant education and training and meets the standards of competence prescribed in those tables for the functions concerned.

3 Every candidate for certification at the management level as the person responsible for the mechanical propulsion of a ship powered by main propulsion machinery of 750 kW or more, or the person upon whom such responsibility will fall in the event of the incapacity of the person responsible for the mechanical propulsion of the ship, shall be required, in addition to compliance with the standard of competence specified in table A-III/1, to complete relevant education and training and meet the standards of competence for all of the functions prescribed in table A-III/2, as appropriate. Functions specified in the tables of chapter II of this part may be added provided the candidate completes, as appropriate, additional relevant education and training and meets the standards of competence prescribed in those tables for the functions concerned.

4 Every candidate for certification at the support level:

.1 in navigation or marine engineering shall be required to complete relevant training and meet the standard of competence for the function prescribed in either table A-II/4 or table A-III/4. Functions specified in table A-III/4 or A-II/4 respectively may be added provided the candidate completes, as appropriate, additional relevant training and meets the standard of competence prescribed in those tables for the function concerned;

.2 as able seafarer deck shall be required, in addition to compliance with the standard of competence specified in table A-II/4, to complete relevant training and meet the standard of competence for all of the functions prescribed in table A-II/5. Functions specified in table A-III/4 or A-III/5 may be added provided the candidate completes, as appropriate, additional relevant training and meets the standard of competence prescribed in that (those) table(s) for the function(s) concerned; and

- .3 as able seafarer engine shall be required, in addition to compliance with the standard of competence specified in table A-III/4, to complete relevant training and meet the standard of competence for all of the functions prescribed in table A-III/5. Functions specified in table A-II/4 or A-II/5 may be added provided the candidate completes, as appropriate, additional relevant training and meets the standard of competence prescribed in that (those) table(s) for the function(s) concerned.

Section A-VII/2

Certification of seafarers

1 In accordance with the requirements of regulation VII/1, paragraph 1.3, every candidate for certification under the provisions of chapter VII at operational level in functions specified in tables A-II/1 and A-III/1 shall:

- .1 have approved seagoing service of not less than 12 months, which service shall include a period of at least six months performing engine-room duties under the supervision of a qualified engineer officer and, where the function of navigation is required, a period of at least six months performing bridge watchkeeping duties under the supervision of a qualified bridge watchkeeping officer; and
- .2 have completed, during this service, onboard training programmes approved as meeting the relevant requirements of sections A-II/1 and A-III/1 and documented in an approved training record book.

2 Every candidate for certification under the provisions of chapter VII at the management level in a combination of functions specified in tables A-II/2 and A-III/2 shall have approved seagoing service related to the functions to be shown in the endorsement to the certificate as follows:

- .1 *for persons other than those having command or responsibility for the mechanical propulsion of a ship* – 12 months performing duties at the operational level related to regulation III/2 or III/3 as appropriate and, where the function of navigation at the management level is required, at least 12 months performing bridge watchkeeping duties at the operational level;
- .2 *for those having command or the responsibility for the mechanical propulsion of a ship* – not less than 48 months, including the provisions in paragraph 2.1 of this section, performing, as a certificated officer, duties related to the functions to be shown in the endorsement to the certificate, of which 24 months shall be served performing functions set out in table A-III/1 and 24 months shall be served performing functions set out in tables A-III/1 and A-III/2.

3 In accordance with the requirements of regulation VII/1, paragraph 1.3, every candidate for certification under the provisions of chapter VII at support level in functions specified in tables A-II/4 and A-III/4 shall have completed:

- .1 approved seagoing service including not less than 12 months' experience, made up of:

- .1.1 not less than 6 months associated with navigational watchkeeping duties, and
 - .1.2 not less than 6 months associated with engine-room duties; or
 - .2 special training, either pre-sea or on board ship, including an approved period of seagoing service which shall not be less than 4 months, made up of:
 - .2.1 not less than 2 months associated with navigational watchkeeping duties, and
 - .2.2 not less than 2 months associated with engine-room duties;
 - .3 the seagoing service, training and experience required by paragraph 3.1 or 3.2 shall be carried out under the direct supervision of an appropriately qualified officer or rating.
- 4 In accordance with the requirements of regulation VII/1, paragraph 1.3, every candidate for certification under the provisions of chapter VII at support level in functions specified in tables A-II/5 and A-III/5 shall, while qualified to serve as a rating forming part of a navigational and engine-room watch, meet the standards of competence specified in sections A-II/5 and A-III/5 of the STCW Code and have completed:
 - .1 approved seagoing service of not less than 30 months, made up of:
 - .1.1 not less than 18 months associated with able seafarer deck duties, and
 - .1.2 not less than 12 months associated with able seafarer engine duties; or
 - .2 an approved training programme and not less than 18 months of approved seagoing service, made up of:
 - .2.1 not less than 12 months associated with able seafarer deck duties; and
 - .2.2 not less than 6 months associated with able seafarer engine duties; or
 - .3 an approved special integrated deck and engine training programme, including not less than 12 months' approved seagoing service in an integrated deck and engine department, made up of:
 - .3.1 not less than 6 months associated with able seafarer deck duties; and
 - .3.2 not less than 6 months associated with able seafarer engine duties.

Section A-VII/3

Principles governing the issue of alternative certificates

(No provisions)

CHAPTER VIII

Standards regarding watchkeeping

Section A-VIII/1

Fitness for duty

- 1 Administrations shall take account of the danger posed by fatigue of seafarers, especially those whose duties involve the safe and secure operation of a ship.
- 2 All persons who are assigned duty as officer in charge of a watch or as a rating forming part of a watch and those whose duties involve designated safety, prevention of pollution and security duties shall be provided with a rest period of not less than:
 - .1 a minimum of 10 hours of rest in any 24-hour period; and
 - .2 77 hours in any 7-day period.
- 3 The hours of rest may be divided into no more than two periods, one of which shall be at least 6 hours in length, and the intervals between consecutive periods of rest shall not exceed 14 hours.
- 4 The requirements for rest periods laid down in paragraphs 2 and 3 need not be maintained in the case of an emergency or in other overriding operational conditions. Musters, fire-fighting and lifeboat drills, and drills prescribed by national laws and regulations and by international instruments, shall be conducted in a manner that minimizes the disturbance of rest periods and does not induce fatigue.
- 5 Administrations shall require that watch schedules be posted where they are easily accessible. The schedules shall be established in a standardized format* in the working language or languages of the ship and in English.
- 6 When a seafarer is on call, such as when a machinery space is unattended, the seafarer shall have an adequate compensatory rest period if the normal period of rest is disturbed by call-outs to work.
- 7 Administrations shall require that records of daily hours of rest of seafarers be maintained in a standardized format*, in the working language or languages of the ship and in English, to allow monitoring and verification of compliance with the provisions of this section. The seafarers shall receive a copy of the records pertaining to them, which shall be endorsed by the master or by a person authorized by the master and by the seafarers.
- 8 Nothing in this section shall be deemed to impair the right of the master of a ship to require a seafarer to perform any hours of work necessary for the immediate safety of the ship, persons on board or cargo, or for the purpose of giving assistance to other ships or persons in distress at sea. Accordingly, the master may suspend the schedule of hours of rest and require a

* The IMO/ILO Guidelines for the development of tables of seafarers' shipboard working arrangements and formats of records of seafarers' hours of work or hours of rest may be used.

seafarer to perform any hours of work necessary until the normal situation has been restored. As soon as practicable after the normal situation has been restored, the master shall ensure that any seafarers who have performed work in a scheduled rest period are provided with an adequate period of rest.

[9] Nothing in this Convention shall prevent Parties from applying exceptions to the above limits, as provided for by other relevant international Conventions. These exceptions shall under no circumstances be less than 70 hours of rest in any 7-day period.

9bis Such exceptions shall, as far as possible, follow the standards set out, while taking into account the guidance regarding prevention of fatigue laid down in section B-VIII/1.]

[9] Parties may grant exemptions from the required hours of rest in paragraph 2.2 above provided that the rest period under no circumstances is less than 70 hours in any 7-day period. Such exemptions shall not be given for more than two consecutive weeks and shall, as far as possible, take into account the guidance regarding prevention of fatigue laid down in section B-VIII/1.]

10 Each Administration shall establish, for the purpose of preventing alcohol abuse, a limit of not greater than 0.05% blood alcohol level (BAC) or 0.25 mg/l alcohol in the breath or a quantity of alcohol leading to such alcohol concentration for masters, officers and other seafarers while performing designated safety, security and marine environmental duties.

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.

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 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 routing 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 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;

*

See SOLAS regulations V/24, V/25 and V/26.

- .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;
- .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, 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, 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 4-2 – Principles to be observed in keeping an engineering watch

52 The term *engineering watch* as used in parts 4-2, 5-2 and 5-4 of this section means either a person or a group of personnel comprising the watch or a period of responsibility for an officer during which the physical presence in machinery spaces of that officer may or may not be required.

53 The *officer in charge of the engineering watch* is the chief engineer officer's representative and is primarily responsible, at all times, for the safe and efficient operation and upkeep of machinery affecting the safety of the ship and is responsible for the inspection, operation and testing, as required, of all machinery and equipment under the responsibility of the engineering watch.

Watch arrangements

54 The composition of the engineering watch shall, at all times, be adequate to ensure the safe operation of all machinery affecting the operation of the ship, in either automated or manual mode, and be appropriate to the prevailing circumstances and conditions.

55 When deciding the composition of the engineering watch, which may include appropriately qualified ratings, the following criteria, *inter alia*, shall be taken into account:

- .1 the type of ship and the type and condition of the machinery;
- .2 the adequate supervision, at all times, of machinery affecting the safe operation of the ship;
- .3 any special modes of operation dictated by conditions such as weather, ice, contaminated water, shallow water, emergency conditions, damage containment or pollution abatement;
- .4 the qualifications and experience of the engineering watch;
- .5 the safety of life, ship, cargo and port, and protection of the environment;

- .6 the observance of international, national and local regulations; and
- .7 maintaining the normal operations of the ship.

Taking over the watch

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

57 The relieving officer of the engineering watch shall ensure that the members of the relieving engineering watch are apparently fully capable of performing their duties effectively.

58 Prior to taking over the engineering watch, relieving officers shall satisfy themselves regarding at least the following:

- .1 the standing orders and special instructions of the chief engineer officer relating to the operation of the ship's systems and machinery;
- .2 the nature of all work being performed on machinery and systems, the personnel involved and potential hazards;
- .3 the level and, where applicable, the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of the contents thereof;
- .4 the condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities;
- .5 any special requirements relating to sanitary system disposals;
- .6 condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system;
- .7 where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually;
- .8 where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control systems, limit control systems, combustion control systems, fuel-supply control systems and other equipment related to the operation of steam boilers;
- .9 any potentially adverse conditions resulting from bad weather, ice, or contaminated or shallow water;
- .10 any special modes of operation dictated by equipment failure or adverse ship conditions;
- .11 the reports of engine-room ratings relating to their assigned duties;

- .12 the availability of fire-fighting appliances; and
- .13 the state of completion of the engine-room log.

Performing the engineering watch

59 The officer in charge of the engineering watch shall ensure that the established watchkeeping arrangements are maintained and that, under direction, engine-room ratings, if forming part of the engineering watch, assist in the safe and efficient operation of the propulsion machinery and auxiliary equipment.

60 The officer in charge of the engineering watch shall continue to be responsible for machinery-space operations, despite the presence of the chief engineer officer in the machinery spaces, until specifically informed that the chief engineer officer has assumed that responsibility and this is mutually understood.

61 All members of the engineering watch shall be familiar with their assigned watchkeeping duties. In addition, every member shall, with respect to the ship they are serving in, have knowledge of:

- .1 the use of appropriate internal communication systems;
- .2 the escape routes from machinery spaces;
- .3 the engine-room alarm systems and be able to distinguish between the various alarms, with special reference to the fire-extinguishing media alarm; and
- .4 the number, location and types of fire-fighting equipment and damage-control gear in the machinery spaces, together with their use and the various safety precautions to be observed.

62 Any machinery not functioning properly, expected to malfunction or requiring special service shall be noted along with any action already taken. Plans shall be made for any further action if required.

63 When the machinery spaces are in the manned condition, the officer in charge of the engineering watch shall at all times be readily capable of operating the propulsion equipment in response to needs for changes in direction or speed.

64 When the machinery spaces are in the periodic unmanned condition, the designated duty officer in charge of the engineering watch shall be immediately available and on call to attend the machinery spaces.

65 All bridge orders shall be promptly executed. Changes in direction or speed of the main propulsion units shall be recorded, except where an Administration has determined that the size or characteristics of a particular ship make such recording impracticable. The officer in charge of the engineering watch shall ensure that the main propulsion unit controls, when in the manual mode of operation, are continuously attended under stand-by or manoeuvring conditions.

66 Due attention shall be paid to the ongoing maintenance and support of all machinery, including mechanical, electrical, electronic, hydraulic and pneumatic systems, their control apparatus and associated safety equipment, all accommodation service systems equipment and the recording of stores and spare gear usage.

67 The chief engineer officer shall ensure that the officer in charge of the engineering watch is informed of all preventive maintenance, damage control, or repair operations to be performed during the engineering watch. The officer in charge of the engineering watch shall be responsible for the isolation, bypassing and adjustment of all machinery under the responsibility of the engineering watch that is to be worked on, and shall record all work carried out.

68 When the engine-room is put in a stand-by condition, the officer in charge of the engineering watch shall ensure that all machinery and equipment which may be used during manoeuvring is in a state of immediate readiness and that an adequate reserve of power is available for steering gear and other requirements.

69 Officers in charge of an engineering watch shall not be assigned or undertake any duties which would interfere with their supervisory duties in respect of the main propulsion system and ancillary equipment. They shall keep the main propulsion plant and auxiliary systems under constant supervision until properly relieved, and shall periodically inspect the machinery in their charge. They shall also ensure that adequate rounds of the machinery and steering-gear spaces are made for the purpose of observing and reporting equipment malfunctions or breakdowns, performing or directing routine adjustments, required upkeep and any other necessary tasks.

70 Officers in charge of an engineering watch shall direct any other member of the engineering watch to inform them of potentially hazardous conditions which may adversely affect the machinery or jeopardize the safety of life or of the ship.

71 The officer in charge of the engineering watch shall ensure that the machinery space watch is supervised, and shall arrange for substitute personnel in the event of the incapacity of any engineering watch personnel. The engineering watch shall not leave the machinery spaces unsupervised in a manner that would prevent the manual operation of the engine-room plant or throttles.

72 The officer in charge of the engineering watch shall take the action necessary to contain the effects of damage resulting from equipment breakdown, fire, flooding, rupture, collision, stranding, or other cause.

73 Before going off duty, the officer in charge of the engineering watch shall ensure that all events related to the main and auxiliary machinery which have occurred during the engineering watch are suitably recorded.

74 The officer in charge of the engineering watch shall co-operate with any engineer in charge of maintenance work during all preventive maintenance, damage control or repairs. This shall include, but not necessarily be limited to:

- .1 isolating and bypassing machinery to be worked on;
- .2 adjusting the remaining plant to function adequately and safely during the maintenance period;

- .3 recording, in the engine-room log or other suitable document, the equipment worked on and the personnel involved, and which safety steps have been taken and by whom, for the benefit of relieving officers and for record purposes; and
- .4 testing and putting into service, when necessary, the repaired machinery or equipment.

75 The officer in charge of the engineering watch shall ensure that any engine-room ratings who perform maintenance duties are available to assist in the manual operation of machinery in the event of automatic equipment failure.

76 The officer in charge of the engineering watch shall bear in mind that changes in speed, resulting from machinery malfunction, or any loss of steering may imperil the safety of the ship and life at sea. The bridge shall be immediately notified in the event of fire and of any impending action in machinery spaces that may cause reduction in the ship's speed, imminent steering failure, stoppage of the ship's propulsion system or any alteration in the generation of electric power or similar threat to safety. This notification, where possible, shall be accomplished before changes are made, in order to afford the bridge the maximum available time to take whatever action is possible to avoid a potential marine casualty.

77 The officer in charge of the engineering watch shall notify the chief engineer officer without delay:

- .1 when engine damage or a malfunction occurs which may be such as to endanger the safe operation of the ship;
- .2 when any malfunction occurs which, it is believed, may cause damage or breakdown of propulsion machinery, auxiliary machinery or monitoring and governing systems; and
- .3 in any emergency or if in any doubt as to what decision or measures to take.

78 Despite the requirement to notify the chief engineer officer in the foregoing circumstances, the officer in charge of the engineering watch shall not hesitate to take immediate action for the safety of the ship, its machinery and crew where circumstances require.

79 The officer in charge of the engineering watch shall give the watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe engineering watch. Routine machinery upkeep, performed as incidental tasks as a part of keeping a safe watch, shall be set up as an integral part of the watch routine. Detailed repair maintenance involving repairs to electrical, mechanical, hydraulic, pneumatic or applicable electronic equipment throughout the ship shall be performed with the cognizance of the officer in charge of the engineering watch and chief engineer officer. These repairs shall be recorded.

Engineering watchkeeping under different conditions and in different areas

Restricted visibility

80 The officer in charge of the engineering watch shall ensure that permanent air or steam pressure is available for sound signals and that at all times bridge orders relating to changes in speed or direction of operation are immediately implemented and, in addition, that auxiliary machinery used for manoeuvring is readily available.

Coastal and congested waters

81 The officer in charge of the engineering watch shall ensure that all machinery involved with the manoeuvring of the ship can immediately be placed in the manual mode of operation when notified that the ship is in congested waters. The officer in charge of the engineering watch shall also ensure that an adequate reserve of power is available for steering and other manoeuvring requirements. Emergency steering and other auxiliary equipment shall be ready for immediate operation.

Ship at anchor

82 At an unsheltered anchorage the chief engineer officer shall consult with the master whether or not to maintain the same engineering watch as when under way.

83 When a ship is at anchor in an open roadstead or any other virtually “at-sea” condition, the engineer officer in charge of the engineering watch shall ensure that:

- .1 an efficient engineering watch is kept;
- .2 periodic inspection is made of all operating and stand-by machinery;
- .3 main and auxiliary machinery is maintained in a state of readiness in accordance with orders from the bridge;
- .4 measures are taken to protect the environment from pollution by the ship, and that applicable pollution-prevention regulations are complied with; and
- .5 all damage-control and fire-fighting systems are in readiness.

Part 4-3 – Principles to be observed in keeping a radio watch

General provisions

84 Administrations shall direct the attention of companies, masters and radio watchkeeping personnel to comply with the following provisions to ensure that an adequate safety radio watch is maintained while a ship is at sea. In complying with this Code, account shall be taken of the Radio Regulations.

Watch arrangements

- 85 In deciding the arrangements for the radio watch, the master of every seagoing ship shall:
- .1 ensure that the radio watch is maintained in accordance with the relevant provisions of the Radio Regulations and the SOLAS Convention;
 - .2 ensure that the primary duties for radio watchkeeping are not adversely affected by attending to radio traffic not relevant to the safe movement of the ship and safety of navigation; and
 - .3 take into account the radio equipment fitted on board and its operational status.

Performing the radio watch

- 86 The radio operator performing radio watchkeeping duties shall:
- .1 ensure that watch is maintained on the frequencies specified in the Radio Regulations and the SOLAS Convention; and
 - .2 while on duty, regularly check the operation of the radio equipment and its sources of energy and report to the master any observed failure of this equipment.

87 The requirements of the Radio Regulations and the SOLAS Convention on keeping a radiotelegraph or radio log, as appropriate, shall be complied with.

88 The maintenance of radio records, in compliance with the requirements of the Radio Regulations and the SOLAS Convention, is the responsibility of the radio operator designated as having primary responsibility for radiocommunications during distress incidents. The following shall be recorded, together with the times at which they occur:

- .1 a summary of distress, urgency and safety radiocommunications;
- .2 important incidents relating to the radio service;
- .3 where appropriate, the position of the ship at least once per day; and
- .4 a summary of the condition of the radio equipment, including its sources of energy.

89 The radio records shall be kept at the distress communications operating position, and shall be made available:

- .1 for inspection by the master; and
- .2 for inspection by any authorized official of the Administration and by any duly authorized officer exercising control under article X of the Convention.

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 5-2 – Taking over the engineering watch

100 Prior to taking over the engineering watch, the relieving officer shall be informed by the officer in charge of the engineering watch as to:

- .1 the standing orders of the day, any special orders relating to the ship operations, maintenance functions, repairs to the ship's machinery or control equipment;
- .2 the nature of all work being performed on machinery and systems on board ship, personnel involved and potential hazards;
- .3 the level and condition, where applicable, of water or residue in bilges, ballast tanks, slop tanks, sewage tanks, reserve tanks and special requirements for the use or disposal of the contents thereof;
- .4 any special requirements relating to sanitary system disposals;
- .5 the condition and state of readiness of portable fire-extinguishing equipment and fixed fire-extinguishing installations and fire-detection systems;
- .6 authorized repair personnel on board engaged in engineering activities, their work locations and repair functions and other authorized persons on board and the required crew;
- .7 any port regulations pertaining to ship effluents, fire-fighting requirements and ship readiness, particularly during potential bad weather conditions;
- .8 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;
- .9 any other circumstance of importance to the safety of the ship, its crew, cargo or the protection of the environment from pollution; and
- .10 the procedures for notifying the appropriate authority of environmental pollution resulting from engineering activities.

101 Relieving officers, before assuming charge of the engineering watch, shall satisfy themselves that they are fully informed by the officer being relieved, as outlined above, and:

- .1 be familiar with existing and potential sources of power, heat and lighting and their distribution;
- .2 know the availability and condition of ship's fuel, lubricants and all water supplies; and
- .3 be ready to prepare the ship and its machinery, as far as is possible, for stand-by or emergency conditions as required.

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 5-4 – Performing the engineering watch

103 Officers in charge of the engineering watch shall pay particular attention to:

- .1 the observance of all orders, special operating procedures and regulations concerning hazardous conditions and their prevention in all areas in their charge;
- .2 the instrumentation and control systems, monitoring of all power supplies, components and systems in operation;
- .3 the techniques, methods and procedures necessary to prevent violation of the pollution regulations of the local authorities; and
- .4 the state of the bilges.

104 Officers in charge of the engineering watch shall:

- .1 in emergencies, raise the alarm when, in their opinion, the situation so demands, and take all possible measures to prevent damage to the ship, persons on board and cargo;
- .2 be aware of the deck officer's needs relating to the equipment required in the loading or unloading of the cargo and the additional requirements of the ballast and other ship stability control systems;
- .3 make frequent rounds of inspection to determine possible equipment malfunction or failure, and take immediate remedial action to ensure the safety of the ship, of cargo operations, of the port and the environment;
- .4 ensure that the necessary precautions are taken, within their area of responsibility, to prevent accidents or damage to the various electrical, electronic, hydraulic, pneumatic and mechanical systems of the ship; and
- .5 ensure that all important events affecting the operation, adjustment or repair of the ship's machinery are satisfactorily recorded.

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.

ANNEX 3**DRAFT AMENDMENTS TO PART B OF THE
SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) CODE****PART B****Recommended guidance regarding provisions of the STCW Convention
and its annex****Introduction**

1 This part of the STCW Code contains recommended guidance intended to assist Parties to the STCW Convention and those involved in implementing, applying or enforcing its measures to give the Convention full and complete effect in a uniform manner.

2 The measures suggested are not mandatory and the examples given are only intended to illustrate how certain Convention requirements may be complied with. However, the recommendations in general represent an approach to the matters concerned which has been harmonized through discussion within IMO involving, where appropriate, consultation with the International Labour Organization, the International Telecommunication Union and the World Health Organization.

3 Observance of the recommendations contained in this part will assist the Organization in achieving its goal of maintaining the highest practicable standards of competence in respect of crews of all nationalities and ships of all flags.

4 Guidance is provided in this part in respect of certain articles of the Convention, in addition to guidance on certain regulations in its annex. The numbering of the sections of this part therefore corresponds with that of the articles and the regulations of the Convention. As in part A, the text of each section may be divided into numbered parts and paragraphs, but such numbering is unique to that text alone.

Guidance regarding provisions of the articles

Section B-I

Guidance regarding general obligations under the Convention

(No provisions)

Section B-II

Guidance regarding definitions and clarifications

1 The definitions contained in article II of the Convention, and the definitions and clarifications contained in regulation I/1 of its annex, apply equally to the terms used in parts A and B of this Code. Supplementary definitions which apply only to the provisions of this Code are contained in section A-I/1.

2 The definition of *certificate* appearing in article II (c) provides for three possibilities:

- .1 the Administration may issue the certificate;
- .2 the Administration may have the certificate issued under its authority; or
- .3 the Administration may recognize a certificate issued by another Party, as provided for in regulation I/10.

Section B-III

Guidance regarding the application of the Convention

1 While the definition of *fishing vessel* contained in article II, paragraph (h) excludes vessels used for catching fish, whales, seals, walrus or other living resources of the sea from application of the Convention, vessels not engaged in the catching activity cannot enjoy such exclusion.

2 The Convention excludes all wooden ships of primitive build, including junks.

Section B-IV

Guidance regarding the communication of information

1 In paragraph (1)(b) of article IV, the words “where appropriate” are intended to include:

- .1 the recognition of a certificate issued by another Party; or
- .2 the issue of the Administration’s own certificate, where applicable, on the basis of recognition of a certificate issued by another Party.

Section B-V

Guidance regarding other treaties and interpretation

1 The word “arrangements” in paragraph (1) of article V is intended to include provisions previously established between States for the reciprocal recognition of certificates.

Section B-VI

Guidance regarding certificates

See the guidance given in sections B-II and B-I/2.

1 A policy statement and an outline of the procedures to be followed should be published for the information of companies operating ships under the flag of the Administration.

Section B-VII

Guidance regarding transitional provisions

1 Certificates issued for service in one capacity which are currently recognized by a Party as an adequate qualification for service in another capacity, e.g., chief mate certificates recognized for service as master, should continue to be accepted as valid for such service under article VII. This acceptance also applies to such certificates issued under the provisions of paragraph (2) of article VII.

Section B-VIII

Guidance regarding dispensations

1 A policy statement and an outline of the procedures to be followed should be published for the information of companies operating ships under the flag of the Administration. Guidance should be provided to those officials authorized by the Administration to issue dispensations. Information on action taken should be summarized in the initial report communicated to the Secretary-General in accordance with the requirements of section A-I/7.

Section B-IX

Guidance regarding equivalents

1 Naval certificates may continue to be accepted and certificates of service may continue to be issued to naval officers as equivalents under article IX, provided that the requirements of the Convention are met.

Section B-X

Guidance regarding control

(No provisions – see section B-I/4.)

Section B-XI

Guidance regarding the promotion of technical co-operation

1 Governments should provide, or arrange to provide, in collaboration with IMO, assistance to States which have difficulty in meeting the requirements of the Convention and which request such assistance.

2 The importance of adequate training for masters and other personnel serving on board oil, chemical and liquefied gas tankers and ro-ro passenger ships is stressed, and it is recognized that in some cases there may be limited facilities for obtaining the required experience and providing specialized training programmes, particularly in developing countries.

Examination database

3 Parties with maritime training academies or examination centres serving several countries and wishing to establish a database of examination questions and answers are encouraged to do so, on the basis of bilateral co-operation with a country or countries which already have such a database.

Availability of maritime training simulators

4 The IMO Secretariat maintains a list of maritime training simulators, as a source of information for Parties and others, on the availability of different types of simulators for training seafarers, in particular where such training facilities may not be available to them nationally.

5 Parties are urged^{*} to provide information on their national maritime training simulators to the IMO Secretariat and to update the information whenever any change or addition is made to their maritime training simulator facilities.

Information on technical co-operation

6 Information on technical advisory services, access to international training institutions affiliated with IMO, and information on fellowships and other technical co-operation which may be provided by or through IMO may be obtained by contacting the Secretary-General at 4 Albert Embankment, London SE1 7SR, United Kingdom.

(No guidance is provided regarding articles XII to XVII.)

* See MSC.1/Circ.1209.

Guidance regarding provisions of the annex to the STCW Convention

CHAPTER I

Guidance regarding general provisions

Section B-I/1

Guidance regarding definitions and clarifications

1 The definitions contained in article II of the Convention, and the definitions and interpretations contained in regulation I/1 of its annex, apply equally to the terms used in parts A and B of this Code. Supplementary definitions which apply only to the provisions of this Code are contained in section A-I/1.

2 Officers with capacities covered under the provisions of chapter VII may be designated as “polyvalent officer”, “dual-purpose officer” or other designations as approved by the Administration, in accordance with the terminology used in the applicable safe manning requirements.

3 Ratings qualified to serve in capacities covered under the provisions of chapter VII may be designated as “polyvalent ratings” or other designations as approved by the Administration, in accordance with the terminology used in the applicable safe manning requirements.

Section B-I/2

Guidance regarding certificates and endorsements

1 Where an endorsement is integrated in the format of a certificate as provided by section A-I/2, paragraph 1, the relevant information should be inserted in the certificate in the manner explained hereunder, except for the omission of the space numbered .2. Otherwise, in preparing endorsements attesting the issue of a certificate, the spaces numbered .1 to .17 in the form which follows the text hereunder should be completed as follows:

- .1 Enter the name of the issuing State.
- .2 Enter the number assigned to the certificate by the Administration.
- .3 Enter the full name of the seafarer to whom the certificate is issued. The name should be the same as that appearing in the seafarer’s passport, seafarer’s identity certificate and other official documents issued by the Administration.
- .4 The number or numbers of the STCW Convention regulation or regulations under which the seafarer has been found qualified should be entered here, for example:
 - .4.1 “Regulation II/1”, if the seafarer has been found qualified to fill the capacity of officer in charge of a navigational watch,
 - .4.2 “Regulation III/1”, if the seafarer has been found qualified to act as engineer officer in charge of a watch in a manned engine-room, or as designated duty engineer officer in a periodically unmanned engine-room,

- .4.3 “Regulation IV/2”, if the seafarer has been found qualified to fill the capacity of radio operator,
- .4.4 “Regulation VII/1”, if the certificate is a functional certificate and the seafarer has been found qualified to perform functions specified in part A of the Code, for example, the function of marine engineering at the management level, and
- .4.5 “Regulations III/1 and V/1”, if found qualified to act as the engineer officer in charge of a watch in a manned engine-room, or as designated duty engineer officer in a periodically unmanned engine-room in tankers. (See limitations in paragraphs .8 and .10 below.)
- .5 Enter the date of expiry of the endorsement. This date should not be later than the date of expiry, if any, of the certificate in respect of which the endorsement is issued, nor later than five years after the date of issue of the endorsement.
- .6 In this column should be entered each of the functions specified in part A of the Code which the seafarer is qualified to perform. Functions and their associated levels of responsibility are specified in the tables of competence set out in chapters II, III and IV of part A of the Code, and are also listed for convenient reference in the introduction to part A. When reference is made under .4 above to regulations in chapter II, III or IV it is not necessary to list specific functions.
- .7 In this column should be entered the levels of responsibility at which the seafarer is qualified to perform each of the functions entered in column .6. These levels are specified in the tables of competence set out in chapters II, III and IV of part A of the Code, and are also listed, for convenient reference, in the introduction to part A.
- .8 A general limitation, such as the requirement to wear corrective lenses when performing duties, should be entered prominently at the top of this limitations column. Limitations applying to the functions listed in column .6 should be entered on the appropriate line against the function concerned, for example:
- .8.1 “Not valid for service in tankers” – if not qualified under chapter V,
- .8.2 “Not valid for service in tankers other than oil tankers” – if qualified under chapter V for service only in oil tankers,
- .8.3 “Not valid for service in ships in which steam boilers form part of the ship’s machinery” – if the related knowledge has been omitted in accordance with STCW Code provisions, and
- .8.4 “Valid only on near-coastal voyages” – if the related knowledge has been omitted in accordance with STCW Code provisions.

Note: Tonnage and power limitations need not be shown here if they are already indicated in the title of the certificate and in the capacity entered in column .9.

- .9 The capacity or capacities entered in this column should be those specified in the title to the STCW regulation or regulations concerned in the case of certificates issued under chapter II or III, or should be as specified in the applicable safe manning requirements of the Administration, as appropriate.
- .10 A general limitation, such as the requirement to wear corrective lenses when performing duties, should be entered prominently at the top of this limitations column also. The limitations entered in column .10 should be the same as those shown in column .8 for the functions performed in each capacity entered.
- .11 The number entered in this space should be that of the certificate, so that both certificate and endorsement have the same unique number for reference and for location in the register of certificates and/or endorsements, etc.
- .12 The date of original issue of the endorsement should be entered here; it may be the same as, or differ from, the date of issue of the certificate, in accordance with the circumstances.
- .13 The name of the official authorized to issue the endorsement should be shown here in block letters below the official's signature.
- .14 The date of birth shown should be the date confirmed from Administration records or as otherwise verified.
- .15 The endorsement should be signed by the seafarer in the presence of an official, or may be incorporated from the seafarer's application form duly completed and verified.
- .16 The photograph should be a standard black and white or colour passport-type head and shoulders photograph, supplied in duplicate by the seafarer so that one may be kept in or associated with the register of certificates.
- .17 If the blocks for revalidation are shown as part of the endorsement form (see section A-I/2, paragraph 1), the Administration may revalidate the endorsement by completing the block after the seafarer has demonstrated continuing proficiency as required by regulation I/11.

(Official Seal)

(COUNTRY)

**ENDORSEMENT ATTESTING THE ISSUE OF A CERTIFICATE
 UNDER THE PROVISIONS OF THE INTERNATIONAL CONVENTION
 ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING
 FOR SEAFARERS, 1978, AS AMENDED**

The Government of1 certifies that Certificate No.2 has been issued to3 who has been found duly qualified in accordance with the provisions of regulation4 of the above Convention, as amended, and has been found competent to perform the following functions, at the levels specified, subject to any limitations indicated until5 or until the date of expiry of any extension of the validity of this endorsement as may be shown overleaf:

.6 FUNCTION	.7 LEVEL	.8 LIMITATIONS APPLYING (IF ANY)

The lawful holder of this endorsement may serve in the following capacity or capacities specified in the applicable safe manning requirements of the Administration:

.9 CAPACITY	.10 LIMITATIONS APPLYING (IF ANY)

Endorsement No11 issued on12

(Official Seal)

.....
Signature of duly authorized official

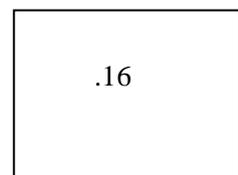
..... .13
Name of duly authorized official

The original of this endorsement must be kept available in accordance with regulation I/2, paragraph 11 of the Convention while serving on a ship.

Date of birth of the holder of the certificate14

Signature of the holder of the certificate15

Photograph of the holder of the certificate



The validity of this endorsement is hereby extended until

(Official Seal)

Signature of duly authorized official

Date of revalidation17

Name of duly authorized official

The validity of this endorsement is hereby extended until

(Official Seal)

Signature of the authorized official

Date of revalidation17

Name of duly authorized official

2 An endorsement attesting the recognition of a certificate may be attached to and form part of the certificate endorsed, or may be issued as a separate document (see STCW regulation I/2, paragraph 8). All entries made in the form are required to be in Roman characters and Arabic figures (see STCW regulation I/2, paragraph 10). The spaces numbered .1 to .17 in the form which follows the text hereunder are intended to be completed as indicated in paragraph 1 above, except in respect of the following spaces:

- .2 where the number assigned by the Party which issued the certificate being recognized should be entered;
- .3 where the name entered should be the same as that appearing in the certificate being recognized;
- .4 where the name of the Party which issued the certificate being recognized should be entered;
- .9 where the capacity or capacities entered should be selected, as appropriate, from those specified in the safe applicable manning requirements of the Administration which is recognizing the certificate;
- .11 where the number entered should be unique to the endorsement both for reference and for location in the register of endorsements; and
- .12 where the date of original issue of the endorsement should be entered.

(Official Seal)

(COUNTRY)

**ENDORSEMENT ATTESTING THE RECOGNITION OF A CERTIFICATE
 UNDER THE PROVISIONS OF THE INTERNATIONAL CONVENTION ON
 STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING
 FOR SEAFARERS, 1978, AS AMENDED**

The Government of 1 certifies that Certificate No. 2 issued to 3 by or on behalf of the Government of 4 is duly recognized in accordance with the provisions of regulation I/10 of the above Convention, as amended, and the lawful holder is authorized to perform the following functions, at the levels specified, subject to any limitations indicated until 5 or until the date of expiry of any extension of the validity of this endorsement as may be shown overleaf:

.6 FUNCTION	.7 LEVEL	.8 LIMITATIONS APPLYING (IF ANY)

The lawful holder of this endorsement may serve in the following capacity or capacities specified in the applicable safe manning requirements of the Administration:

.9 CAPACITY	.10 LIMITATIONS APPLYING (IF ANY)

Endorsement No 11 issued on 12

(Official Seal)

.....
Signature of duly authorized official

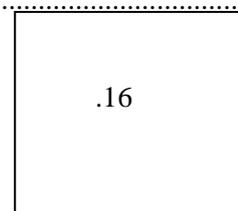
..... 13
Name of duly authorized official

The original of this endorsement must be kept available in accordance with regulation I/2, paragraph 11 of the Convention while serving on a ship.

Date of birth of the holder of the certificate 14

Signature of the holder of the certificate 15

Photograph of the holder of the certificate



The validity of this endorsement is hereby extended until

(Official Seal)

Signature of duly authorized official

Date of revalidation 17

Name of duly authorized official

The validity of this endorsement is hereby extended until

(Official Seal)

Signature of the authorized official

Date of revalidation 17

Name of duly authorized official

3 When replacing a certificate or endorsement which has been lost or destroyed, Parties should issue the replacement under a new number, to avoid confusion with the document to be replaced.

4 If an application for revalidation is made within six months before the expiry of an endorsement, the endorsement referred to in paragraphs 5, 6 and 7 of regulation I/2 may be revalidated until:

- .1 the fifth anniversary of the date of validity, or extension of the validity, of the endorsement; or
- .2 the date the certificate endorsed expires, whichever is earlier.

5 Where a Certificate of Proficiency is issued, it should contain at least the following information:

- .1 names of the issuing Party and authority;
- .2 number assigned to the certificate by the issuing authority;
- .3 full name and date of birth of the seafarer to whom the certificate is issued. The name and birth date should be the same as that appearing in the seafarer's passport or seafarer's identification document;

- .4 title of the certificate. For example, if the certificate is issued in relation to regulation VI/3, paragraph 2, the title used should be “advanced fire fighting” and if it is issued in relation to regulation VI/5, paragraph 1, the title used should be “ship security officer”;
- .5 number, or numbers, of the Convention regulation(s) or of the STCW Code section under which the seafarer has been found qualified;
- .6 dates of issue and expiry of the certificate. If validity of the certificate is unlimited, then, for the benefit of clarification, the “unlimited” term should be entered in front of the date of expiry;
- .7 if applicable, limitations, either general limitation (such as the requirement to wear corrective lenses), ship’s type limitation (such as “valid only for service on ships of GT<500”) or, voyage limitation (such as “valid only on near-coastal voyages”);
- .8 name and signature of the authorized person who issues the certificate;
- .9 photograph of the seafarer. The photograph should be a standard black and white or colour passport-type head and shoulders photograph;
- .10 if the certificate is intended to be revalidated then, the date of revalidation, extension of the validity, name and signature of the authorized person; and
- .11 the contact details of the issuing Authority.

Table B-I/2

List of certificates or documentary evidence required under the STCW Convention

The list below identifies all certificates or documentary evidence in the Convention which authorize the holder to serve in certain functions on board ships. The certificates are subject to the requirements of regulation I/2 regarding language and their availability in original form.

The list also references the relevant regulations and the requirements for endorsement and registration.

Regulations	Type of certificate and brief description	Endorsement attesting recognition of a certificate¹	Registration required²	Revalidation of certificate³
II/1, II/2, II/3, III/1, III/2, III/3, III/6, IV/2, VII/2	Certificate of Competency – For masters, officers and GMDSS radio operator	Yes	Yes	Yes
II/4, III/4, VII/2	Certificate of Proficiency – For Ratings duly certified to be a part of a navigational or engine-room watch	No	Yes	No
II/5, III/5, III/7, VII/2	Certificate of Proficiency – For Ratings duly certified as able seafarer deck, able seafarer engine electro-technical rating	No	Yes	No
V/1-1	Certificate of Proficiency or endorsement to a Certificate of Competency – For masters and officers on oil and chemical tankers	Yes	Yes	Yes
V/1-1	Certificate of Proficiency or endorsement to a Certificate of Competency – For ratings on oil and chemical tankers	No	Yes	No
V/1-2	Certificate of Proficiency – For masters and officers on liquefied gas tankers	Yes	Yes	Yes
V/1-2	Certificate of Proficiency – For ratings on liquefied gas tankers	No	Yes	No
V/2	Documentary evidence – Training for masters, officers, ratings and other personnel serving on passenger ships	No	No	No
VI/1	Documentary evidence –Basic training Or As part of the Certificate of Competency – for masters and officers	No	No	Yes

Regulations	Type of certificate and brief description	Endorsement attesting recognition of a certificate ¹	Registration required ²	Revalidation of certificate ³
VI/2	Certificate of Proficiency – Survival craft, rescue boats and fast rescue boats Or As part of the Certificate of Competency – For masters and officers	No	No	Yes
VI/3	Certificate of Proficiency – Advanced fire fighting Or As part of the Certificate of Competency – For masters and officers	No	No	Yes
VI/4	Certificate of Proficiency – Medical first aid and medical care	No	No	No
VI/5	Certificate of Proficiency – Ship security officer	No	No	No
VI/6	Certificate of Proficiency – Security training for seafarers with designated security duties	No	No	No
	Certificate of Proficiency – Security awareness training	No	No	No

Notes:

- 1 *Endorsement attesting recognition of certificate* means endorsement in accordance with regulation I/2, paragraph 7.
- 2 *Registration required* means as part of a register or registers in accordance with regulation I/2, paragraph 14.
- 3 *Revalidation of certificate* means establishing continued professional competence.

Section B-I/3

Guidance regarding near-coastal voyages

1 Coastal States may adopt regional “near-coastal voyage limits” through bilateral or multilateral arrangements. Details of such arrangements shall be reported to the Secretary-General, who shall circulate such particulars to all Parties.

Section B-I/4

*Guidance regarding control procedures**

Introduction

1 The purpose of the control procedures of regulation I/4 is to enable officers duly authorized by port States to ensure that the seafarers on board have sufficient competence to ensure safe and pollution-free operation of the ship.

2 This provision is no different in principle from the need to make checks on ships’ structures and equipment. Indeed, it builds on these inspections to make an appraisal of the total system of onboard safety and pollution prevention.

Assessment

3 By restricting assessment as indicated in section A-I/4, the subjectivity which is an unavoidable element in all control procedures is reduced to a minimum, no more than would be evident in other types of control inspection.

4 The clear grounds given in regulation I/4, paragraph 1.3 will usually be sufficient to direct the inspector’s attention to specific areas of competency, which could then be followed up by seeking evidence of training in the skills in question. If this evidence is inadequate or unconvincing, the authorized officer may ask to observe a demonstration of the relevant skill.

5 It will be a matter for the professional judgement of the inspector when on board, either following an incident as outlined in regulation I/4 or for the purposes of a routine inspection, whether the ship is operated in a manner likely to pose a danger to persons, property or the environment*.

Section B-I/5

Guidance regarding national provisions

(No provisions)

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

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*.

Use of distance learning and e-learning

6 Parties may allow the training of seafarers by distance learning and e-learning in accordance with the standards of training and assessment set forth in section A-I/6 and the guidance given below.

Guidance for training by distance learning and e-learning

7 Each Party should ensure that any distance learning and e-learning programme:

- .1 is provided by an entity that is approved by the Party;
- .2 is suitable for the selected objectives and training tasks to meet the competence level for the subject covered;

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

- .3 has clear and unambiguous instructions for the trainees to understand how the programme operates;
- .4 provides learning outcomes that meet all the requirements to provide the underpinning knowledge and proficiency of the subject;
- .5 is structured in a way that enables the trainee to systematically reflect on what has been learnt through both self assessment and tutor-marked assignments; and
- .6 provides professional tutorial support through telephone, facsimile or e-mail communications.

8 Companies should ensure that a safe learning environment is provided and that there has been sufficient time provided to enable the trainee to study.

9 Where e-learning is provided, common information formats such as XML (Extensible Markup Language), which is a flexible way to share both the format and the data on the World Wide Web, intranets, and elsewhere, should be used.

10 The e-learning system should be secured from tampering and attempts to hack into the system.

Guidance for assessing a trainee's progress and achievements by training by distance learning and e-learning

11 Each Party should ensure that approved assessment procedures are provided for any distance learning and e-learning programme, including:

- .1 clear information to the students on the way that tests and examinations are conducted and how the results are communicated;
- .2 have test questions that are comprehensive and will adequately assess a trainee's competence and are appropriate to the level being examined;
- .3 procedures in place to ensure questions are kept up to date and;
- .4 the conditions where the examinations can take place and the procedures for invigilation to be conducted;
- .5 secure procedures for the examination system so that it will prevent cheating;
- .6 secure validation procedures to record results for the benefit of the Party.

Register of approved training providers, courses and programmes

12 Each Party should ensure that a register or registers of approved training providers, courses and programmes are maintained and made available to Companies and other Parties on request.

Section B-I/7

Guidance regarding communication of information

Reports of difficulties encountered

1 Parties are encouraged, when communicating information in accordance with article IV and regulation I/7 of the Convention, to include an index specifically locating the required information as follows:

**Index of materials submitted in accordance with
article IV and regulation I/7 of the STCW Convention**

Article IV of the STCW Convention **Location**

- 1 Text of laws, decrees, orders, regulations and instruments
(article IV(1)(a))
- 2 Details on study courses
(article IV(1)(b))
- 3 National examination and other requirements
(article IV(1)(b))
- 4 Specimen certificates
(article IV(1)(c))

Section A-I/7 part 1 of the STCW Code **Location**

- 5 Information on Governmental organization
(section A-I/7, paragraph 2.1)
- 6 Explanation of legal and administrative measures
(section A-I/7, paragraph 2.2)
- 7 Statement of the education, training, examination, assessment
and certification policies
(section A-I/7, paragraph 2.3)
- 8 Summary of the courses, training programmes, examinations,
assessments by certificate
(section A-I/7, paragraph 2.4)
- 9 Outline of the procedures and conditions for authorizations,
accreditations and approvals
(section A-I/7, paragraph 2.5)
- 10 List of authorizations, accreditations and approvals granted
(section A-I/7, paragraph 2.5)

- 11 Summary of procedures for dispensations
(section A-I/7, paragraph 2.6)
- 12 Comparison carried out pursuant to regulation I/11
(section A-I/7, paragraph 2.7)
- 13 Outline of refresher and upgrading training mandated
(section A-I/7, paragraph 2.7)

Section A-I/7, part 2, paragraph 3 of the STCW Code

Location

- 14 Description of equivalency arrangements adopted pursuant to
article IX
(section A-I/7, paragraph 3.1)
- 15 Summary of measures taken to ensure compliance with
regulation I/10
(section A-I/7, paragraph 3.2)
- 16 Specimen copy of safe manning documents issued to ships employing
seafarers holding alternative certificates under regulation VII/1
(section A-I/7, paragraph 3.3)

Section A-I/7, part 2, paragraph 4 of the STCW Code

Location

- 17 Report of results of independent evaluations carried out pursuant
to regulation I/8 covering:
- 18 Terms of reference of evaluators for the independent evaluation
- 19 Qualifications and experience of evaluators
- 20 Date and scope of evaluation
- 21 Non-conformities found
- 22 Corrective measures recommended
- 23 Corrective measures carried out
- 24 List of training institutions/centres covered by
the independent evaluation

Section A-I/7, part 2, paragraph 6 of the STCW Code

Location

- 25 Explanation of legal and administrative measures
(section A-I/7, paragraph 6.1)

- 26 Statement of the education, training, examination, assessment and certification policies (section A-I/7, paragraph 6.2)
- 27 Summary of the courses, training programmes, examinations, assessments by certificate (section A-I/7, paragraph 6.3)
- 28 Outline of refresher and upgrading training mandated (section A-I/7, paragraph 6.4)
- 29 Comparison carried out pursuant to regulation I/11 (section A-I/7, paragraph 6.5)

2 Parties are requested to include, in the reports required by regulation I/7, an indication of any relevant guidance contained in part B of this Code, the observance of which has been found to be impracticable.

Section B-I/8

Guidance regarding quality standards

1 In applying quality standards under the provisions of regulation I/8 and section A-I/8 to the administration of its certification system, each Party should take account of existing national or international models, and incorporate the following key elements:

- .1 an expressed policy regarding quality and the means by which such policy is to be implemented;
- .2 a quality system incorporating the organizational structure, responsibilities, procedures, processes and resources necessary for quality management;
- .3 the operational techniques and activities to ensure quality control;
- .4 systematic monitoring arrangements, including internal quality-assurance evaluations, to ensure that all defined objectives are being achieved; and
- .5 arrangements for periodic external quality evaluations as described in the following paragraphs.

2 In establishing such quality standards for the administration of their national certification system, Administrations should seek to ensure that the arrangements adopted:

- .1 are sufficiently flexible to enable the certification system to take account of the varying needs of the industry, and that they facilitate and encourage the application of new technology;
- .2 cover all the administrative matters that give effect to the various provisions of the Convention, in particular regulations I/2 to I/15 and other provisions which enable the Administration to grant certificates of service and dispensations and to withdraw, cancel and suspend certificates;

- .3 encompass the Administration's responsibilities for approving training and assessment at all levels, from undergraduate-type courses and updating courses for certificates of competency to short courses of vocational training; and
- .4 incorporate arrangements for the internal quality-assurance reviews under paragraph 1.4 involving a comprehensive self-study of the administrative procedures, at all levels, in order to measure achievement of defined objectives and to provide the basis for the independent external evaluation required under section A-I/8, paragraph 3.

Quality standards model for assessment of knowledge, understanding, skills and competence

3 The quality standards model for assessment of knowledge, understanding, skills and competence should incorporate the recommendations of this section within the general framework of either:

- .1 a national scheme for education and training accreditation or quality standards; or
- .2 an alternative quality-standards model acceptable to the Organization.

4 The above quality-standards model should incorporate:

- .1 a quality policy, including a commitment by the training institution or unit to the achievement of its stated aims and objectives and to the consequential recognition by the relevant accrediting or quality-standards authority;
- .2 those quality-management functions that determine and implement the quality policy, relating to aspects of the work which impinge on the quality of what is provided, including provisions for determining progression within a course or programme;
- .3 quality system coverage, where appropriate, of the academic and administrative organizational structure, responsibilities, procedures, processes and the resources of staff and equipment;
- .4 the quality-control functions to be applied at all levels to the teaching, training, examination and assessment activities, and to their organization and implementation, in order to ensure their fitness for their purpose and the achievement of their defined objectives;
- .5 the internal quality-assurance processes and reviews which monitor the extent to which the institution, or training unit, is achieving the objectives of the programmes it delivers, and is effectively monitoring the quality-control procedures which it employs; and
- .6 the arrangements made for periodic external quality evaluations required under regulation I/8, paragraph 2 and described in the following paragraphs, for which the outcome of the quality-assurance reviews forms the basis and starting point.

5 In establishing quality standards for education, training and assessment programmes, the organizations responsible for implementing these programmes should take account of the following:

- .1 Where provisions exist for established national accreditation, or education quality standards, such provisions should be utilized for courses incorporating the knowledge and understanding requirements of the Convention. The quality standards should be applied to both management and operational levels of the activity, and should take account of how it is managed, organized, undertaken and evaluated, in order to ensure that the identified goals are achieved.
- .2 Where acquisition of a particular skill or accomplishment of a designated task is the primary objective, the quality standards should take account of whether real or simulated equipment is utilized for this purpose, and of the appropriateness of the qualifications and experience of the assessors, in order to ensure achievement of the set standards.
- .3 The internal quality-assurance evaluations should involve a comprehensive self-study of the programme, at all levels, to monitor achievement of defined objectives through the application of quality standards. These quality-assurance reviews should address the planning, design, presentation and evaluation of programmes as well as the teaching, learning and communication activities. The outcome provides the basis for the independent evaluation required under section A-I/8, paragraph 3.

The independent evaluation

6 Each independent evaluation should include a systematic and independent examination of all quality activities, but should not evaluate the validity of the defined objectives. The evaluation team should:

- .1 carry out the evaluation in accordance with documented procedures;
- .2 ensure that the results of each evaluation are documented and brought to the attention of those responsible for the area evaluated; and
- .3 check that timely action is taken to correct any deficiencies.

7 The purpose of the evaluation is to provide an independent assessment of the effectiveness of the quality-standard arrangements at all levels. In the case of an education or training establishment, a recognized academic accreditation or quality-standards body or Government agency should be used. The evaluation team should be provided with sufficient advance information to give an overview of the tasks in hand. In the case of a major training institution or programme, the following items are indicative of the information to be provided:

- .1 the mission statement of the institution;
- .2 details of academic and training strategies in use;

- .3 an organization chart and information on the composition of committees and advisory bodies;
- .4 staff and student information;
- .5 a description of training facilities and equipment; and
- .6 an outline of the policies and procedures on:
 - .6.1 student admission,
 - .6.2 the development of new courses and review of existing courses,
 - .6.3 the examination system, including appeals and resits,
 - .6.4 staff recruitment, training, development, appraisal and promotion,
 - .6.5 feedback from students and from industry, and
 - .6.6 staff involvement in research and development.

The report

8 Before submitting a final report, the evaluation team should forward an interim report to the management, seeking their comments on their findings. Upon receiving their comments, the evaluators should submit their final report, which should:

- .1 include brief background information about the institution or training programme;
- .2 be full, fair and accurate;
- .3 highlight the strengths and weaknesses of the institution;
- .4 describe the evaluation procedure followed;
- .5 cover the various elements identified in paragraph 4;
- .6 indicate the extent of compliance or non-compliance with the requirements of the Convention and the effectiveness of the quality standards in ensuring achievement of defined aims and objectives; and
- .7 spell out clearly the areas found to be deficient, offer suggestions for improvement and provide any other comments the evaluators consider relevant.

Section B-I/9

Guidance regarding medical standards

MEDICAL EXAMINATION AND CERTIFICATION

- 1 The Party, in establishing seafarer medical fitness standards and provisions, should follow the guidance contained in the ILO/WHO publication *Guidelines for Conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers*, including any subsequent versions, and any other applicable international guidelines published by the International Labour Organization, the International Maritime Organization or the World Health Organization.
- 2 Appropriate qualifications and experience for medical practitioners conducting medical fitness examinations of seafarers may include occupational health or maritime health qualifications, experience of working as a ship's doctor or a shipping company doctor or working under the supervision of someone with the aforementioned qualifications or experience.
- 3 The premises where medical fitness examinations are carried out should have the facilities and equipment required to carry out medical fitness examination of seafarers.
- 4 Administrations should ensure that recognized medical practitioners enjoy full professional independence in exercising their medical judgement when undertaking medical examination procedures.
- 5 Persons applying for a medical certificate should present to the recognized medical practitioner appropriate identity documentation to establish their identity. They should also surrender their previous medical certificate.
- 6 The medical fitness standards should, so far as possible, define objective criteria with regard to fitness for sea service, taking into account access to medical facilities and medical expertise on board ship. They should, in particular, specify the conditions under which seafarers suffering from potentially life-threatening medical conditions that are controlled by medication may be allowed to continue to serve at sea.
- 7 The medical standards should also identify particular medical conditions, such as colour blindness, which might preclude seafarers holding particular positions on board ship.
- 8 The minimum in-service eyesight standards in each eye for unaided distance vision should be at least 0.1*.
- 9 Persons requiring the use of spectacles or contact lenses to perform duties should have a spare pair or pairs, as required, conveniently available on board the ship. Any need to wear visual aids to meet the required standards should be recorded on the medical fitness certificate issued.
- 10 Colour vision testing should be in accord with the *International Recommendation for Colour Vision Requirements for Transport*, published by the Commission Internationale de l'Eclairage (CIE 143-2001) or comparable test methods.

* Value given in Snellen decimal notation.

Section B-I/10

Guidance regarding the recognition of certificates

- 1 Training carried out under the STCW Convention which does not lead to the issue of an appropriate certificate and on which information provided by a Party is found by the Maritime Safety Committee to give full and complete effect to the Convention in accordance with regulation I/7, paragraph 2 may be accepted by other Parties to the Convention as meeting the relevant training requirements thereof.
- 2 Contacted Administrations should issue documentary proof referred to in regulation I/10, paragraph 5 to enable port State control authorities to accept the same in lieu of endorsement of a certificate issued by another Party for a period of three months from the date of issue, providing the information listed below:
 - .1 seafarer's name
 - .2 date of birth
 - .3 number of the original Certificate of Competency
 - .4 capacity
 - .5 limitations
 - .6 contact details of the Administration
 - .7 dates of issue and expiry.
- 3 Such documentary proof may be made available by electronic means.

Section B-I/11

Guidance regarding the revalidation of certificates

- 1 The courses required by regulation I/11 should include relevant changes in marine legislation, technology and recommendations concerning the safety of life at sea, security and the protection of the marine environment.
- 2 A test may take the form of written or oral examination, the use of a simulator or other appropriate means.
- 3 Approved seagoing service stated in section A-I/11, paragraph 1 may be served in an appropriate lower officer rank than the certificate held.
- 4 If an application for revalidation of a certificate referred to in paragraph 1 of regulation I/11 is made within six months before expiry of the certificate, the certificate may be revalidated until the fifth anniversary of the date of validity, or extension of the validity, of the certificate.

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.

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 antenna 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;

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

** See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

- .2 brilliance, gain and video processor control settings;
- .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, and
 - .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

17 A thorough understanding should be attained of the relationship of the International Regulations for Preventing Collisions at Sea, 1972 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 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.**

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

** See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

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;
- .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

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 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 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, 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;

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

- .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;
- .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 co-ordinate 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.

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;

* See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

- .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 co-ordinates;
- .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 co-ordinates, 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 co-ordinates 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 analyse 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.

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.

* See relevant/appropriate performance standards adopted by the Organization and set out in IMO publication “Performance standards for shipborne radiocommunications and navigational equipment”.

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

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
- .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.

Main and auxiliary machinery operation simulation

73 Engine-room simulation equipment should be capable of simulating a main and auxiliary machinery system and incorporate facilities to:

- .1 create a real-time environment for seagoing and harbour operations, with communication devices and simulation of appropriate main and auxiliary propulsion machinery equipment and control panels;

* 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 and set out in IMO publication "Performance standards for shipborne radiocommunications and navigational equipment".

- .2 simulate relevant sub-systems that should include, but not be restricted to, boiler, steering gear, electrical power general and distribution systems, including emergency power supplies, and fuel, cooling water, refrigeration, bilge and ballast systems;
- .3 monitor and evaluate engine performance and remote sensing systems;
- .4 simulate machinery malfunctions;
- .5 allow for the variable external conditions to be changed so as to influence the simulated operations: weather, ship's draught, seawater and air temperatures;
- .6 allow for instructor-controlled external conditions to be changed: deck steam, accommodation steam, deck air, ice conditions, deck cranes, heavy power, bow thrust, ship load;
- .7 allow for instructor-controlled simulator dynamics to be changed: emergency run, process responses, ship responses; and
- .8 provide a facility to isolate certain processes, such as speed, electrical system, diesel oil system, lubricating oil system, heavy oil system, seawater system, steam system, exhaust boiler and turbo generator, for performing specific training tasks.*

Section B-I/13

Guidance regarding the conduct of trials

(No provisions)

Section B-I/14

Guidance regarding responsibilities of companies and recommended responsibilities of masters and crew members

Companies

1 Companies should provide ship-specific introductory programmes aimed at assisting newly employed seafarers to familiarize themselves with all procedures and equipment relating to their areas of responsibility. **Companies should also ensure that:**

- .1 all seafarers on a ship fitted with free-fall lifeboats should receive familiarization training in boarding and launching procedures for such lifeboats;**
- .2 prior to joining a ship, seafarers assigned as operating crew of free-fall lifeboats should have undergone appropriate training in boarding, launching and recovering of such lifeboats, including participation on at least one occasion in a free-fall launch; and**

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

- .3 personnel who may be required to operate the GMDSS equipment receive GMDSS familiarization training, on joining the ship, and at appropriate intervals thereafter.

2 The familiarization training required by paragraph 3 of section A-I/14 should at least ensure attainment of the abilities that are appropriate to the capacity to be filled and the duties and responsibilities to be taken up, as follows:

Design and operational limitations

- .1 Ability to properly understand and observe any operational limitations imposed on the ship, and to understand and apply performance restrictions, including speed limitations in adverse weather, which are intended to maintain the safety of life, ship and cargo.

Procedures for opening, closing and securing hull openings

- .2 Ability to apply properly the procedures established for the ship regarding the opening, closing and securing of bow, stern, and side doors and ramps and to correctly operate the related systems.

Legislation, codes and agreements affecting ro-ro passenger ships

- .3 Ability to understand and apply international and national requirements for ro-ro passenger ships relevant to the ship concerned and the duties to be performed.

Stability and stress requirements and limitations

- .4 Ability to take proper account of stress limitations for sensitive parts of the ship, such as bow doors and other closing devices that maintain watertight integrity, and of special stability considerations which may affect the safety of ro-ro passenger ships.

Procedures for the maintenance of special equipment on ro-ro passenger ships

- .5 Ability to apply properly the shipboard procedures for maintenance of equipment peculiar to ro-ro passenger ships such as bow, stern and side doors and ramps, scuppers and associated systems.

Loading and cargo securing manuals and calculators

- .6 Ability to make proper use of the loading and securing manuals in respect of all types of vehicles and rail cars where applicable, and to calculate and apply stress limitations for vehicle decks.

Dangerous cargo areas

- .7 Ability to ensure proper observance of special precautions and limitations applying to designated dangerous cargo areas.

Emergency procedures

- .8 Ability to ensure proper application of any special procedures to:

- .8.1 prevent or reduce the ingress of water on vehicle decks,
- .8.2 remove water from vehicle decks, and
- .8.3 minimize effects of water on vehicle decks.

Master

3 The master should take all steps necessary to implement any company instructions issued in accordance with section A-I/14. Such steps should include:

- .1 identifying all seafarers who are newly employed on board the ship before they are assigned to any duties;
- .2 providing the opportunity for all newly arrived seafarers to:
 - .2.1 visit the spaces in which their primary duties will be performed,
 - .2.2 get acquainted with the location, controls and display features of equipment they will be operating or using,
 - .2.3 activate the equipment when possible, and perform functions, using the controls on the equipment, and
 - .2.4 observe and ask questions of someone who is already familiar with the equipment, procedures and other arrangements, and who can communicate information in a language which the seafarer understands; and
- .3 providing for a suitable period of supervision when there is any doubt that a newly employed seafarer is familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of his or her duties.

Crew members

4 Seafarers who are newly assigned to a ship should take full advantage of every opportunity provided to become familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of their duties. Immediately upon arriving on board for the first time, each seafarer has the responsibility to become acquainted with the ship's working environment, particularly with respect to new or unfamiliar equipment, procedures or arrangements.

5 Seafarers who do not promptly attain the level of familiarity required for performing their duties have the obligation to bring this fact to the attention of their supervisor or to the attention of the crew member designated in accordance with section A-I/14, paragraph 2.2, and to identify any equipment, procedure or arrangement which remains unfamiliar.

Section B-I/15

Guidance regarding transitional provisions

(No provisions)

CHAPTER II

Guidance regarding the master and the deck department

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 co-ordinated 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 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.

* 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.

- .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 co-ordination 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;
and
- .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.

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

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/3

Guidance regarding the certification of officers in charge of a navigational watch and of masters on ships of less than 500 gross tonnage

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

Section B-II/4

Guidance regarding the training and certification of ratings forming part of a navigational watch

1 In addition to the requirements stated in table A-II/4 of this Code, Parties are encouraged, for safety reasons, to include the following subjects in the training of ratings forming part of a navigational watch:

- .1 a basic knowledge of the International Regulations for Preventing Collisions at Sea, 1972;
- .2 rigging a pilot ladder;
- .3 an understanding of wheel orders given by pilots in English;
- .4 training for proficiency in survival craft and rescue boats;
- .5 support duties when berthing and unberthing and during towing operations;
- .6 a basic knowledge of anchoring;
- .7 a basic knowledge of dangerous cargoes;
- .8 a basic knowledge of stowage procedures and arrangements for bringing stores on board; and
- .9 a basic knowledge of deck maintenance and of tools used on deck.

Section B-II/5

Guidance regarding the certification of ratings as able seafarer deck

- 1 Onboard training should be documented in an approved training record book.

CHAPTER III

Guidance regarding the engine department

Section B-III/1

Guidance regarding the certification of officers in charge of an engineering watch in a manned engine-room or as designated duty engineers in a periodically unmanned engine-room

1 In table A-III/1, the tools referred to should include hand tools, common measuring equipment, centre lathes, drilling machines, welding equipment and milling machines as appropriate.

2 Training in workshop skills ashore can be carried out in a training institution or approved workshop.

3 Onboard training should be adequately documented in the training record book by qualified assessors.

Section B-III/2

Guidance regarding the certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery of 3,000 kW propulsion power or more

(No provisions)

Guidance regarding training of engineering personnel having management responsibilities for the operation and safety of electrical power plant above 1,000 volts

1 Training of engineering personnel having management responsibilities for the operation and safety of electrical power plant more than 1,000 V should at least include:

- .1 the functional, operational and safety requirements for a marine high-voltage system;
- .2 assignment of suitably qualified personnel to carry out maintenance and repair of high-voltage switchgear of various types;
- .3 taking remedial action necessary during faults in a high-voltage system;
- .4 producing a switching strategy for isolating components of a high-voltage system;
- .5 selecting suitable apparatus for isolation and testing of high-voltage equipment;
- .6 carrying out a switching and isolation procedure on a marine high-voltage system, complete with safety documentation; and
- .7 performing tests of insulation resistance and polarization index on high-voltage equipment.

Section B-III/3

Guidance regarding the certification of chief engineer officers and second engineer officers of ships powered by main propulsion machinery between 750 kW and 3,000 kW propulsion power

(No provisions)

Section B-III/4

Guidance regarding the training and certification of ratings forming part of a watch in a manned engine-room or designated to perform duties in a periodically unmanned engine-room

In addition to the requirements stated in section A-III/4 of this Code, Parties are encouraged, for safety reasons, to include the following items in the training of ratings forming part of an engineering watch:

- .1 a basic knowledge of routine pumping operations, such as bilge, ballast and cargo pumping systems;
- .2 a basic knowledge of electrical installations and the associated dangers;
- .3 a basic knowledge of maintenance and repair of machinery and tools used in the engine-room; and
- .4 a basic knowledge of stowage and arrangements for bringing stores on board.

Section B-III/5

Guidance regarding the certification of ratings as able seafarer engine

- 1 Onboard training should be documented in an approved training record book.

Section B-III/6

Guidance regarding training and certification for electro-technical officers

In addition to the requirements stated in table A-III/6 of this Code, Parties are encouraged to take into account resolution A.702(17) concerning radio maintenance guidelines for the global maritime distress and safety system within their training programmes.

Section B-III/7

Guidance regarding training and certification for electro-technical ratings

(No provisions)

CHAPTER IV

Guidance regarding radiocommunication and radio operators

Section B-IV/1

Guidance regarding the application of chapter IV

(No provisions)

Section B-IV/2

Guidance regarding training and certification of GMDSS radio operators

TRAINING RELATED TO THE FIRST-CLASS RADIOELECTRONIC CERTIFICATE

General

1 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

2 The training should be relevant to the provisions of the STCW Convention, the provisions of the Radio Regulations annexed to the International Telecommunication Convention (Radio Regulations) and the provisions of the International Convention for the Safety of Life at Sea (SOLAS Convention) currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 3 to 14 hereunder.

Theory

3 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS, sufficient to support the practical training provisions given in paragraph 13.

4 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

5 Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the provisions given in paragraphs 6 to 10 below.

6 Theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraphy and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radio beacons (EPIRBs), marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of the principles of other equipment generally used for radionavigation, with particular reference to maintaining the equipment in service.

- 7 Knowledge of factors that affect system reliability, availability, maintenance procedures and proper use of test equipment.
- 8 Knowledge of microprocessors and fault diagnosis in systems using microprocessors.
- 9 Knowledge of control systems in the GMDSS radio equipment, including testing and analysis.
- 10 Knowledge of the use of computer software for the GMDSS radio equipment and methods for correcting faults caused by loss of software control of the equipment.

Regulations and documentation

- 11 Knowledge of:
 - .1 the SOLAS Convention and the Radio Regulations, with particular emphasis on:
 - .1.1 distress, urgency and safety radiocommunications,
 - .1.2 avoiding harmful interference, particularly with distress and safety traffic, and
 - .1.3 prevention of unauthorized transmissions;
 - .2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and
 - .3 use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

- 12 Knowledge of and training in:
 - .1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;
 - .2 procedures for using propagation-prediction information to establish optimum frequencies for communications;
 - .3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records;
 - .4 use of the international phonetic alphabet;
 - .5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;

- .6 ship reporting systems and procedures;
- .7 radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;
- .8 radio medical systems and procedures; and
- .9 causes of false distress alerts and means to avoid them* .

Practical

13 Practical training, supported by appropriate laboratory work, should be given in:

- .1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;
- .2 safe operation of all the GMDSS communication equipment and ancillary devices, including safety precautions;
- .3 adequate and accurate keyboard skills for the satisfactory exchange of communications;
- .4 operational techniques for:
 - .4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,
 - .4.2 antenna adjustment and realignment, as appropriate,
 - .4.3 use of radio life-saving appliances, and
 - .4.4 use of emergency position-indicating radio beacons (EPIRBs);
- .5 antenna rigging, repair and maintenance, as appropriate;
- .6 reading and understanding pictorial, logic and circuit diagrams;
- .7 use and care of those tools and test instruments necessary to carry out at-sea electronic maintenance;
- .8 manual soldering and desoldering techniques, including those involving semi-conductor devices and modern circuits, and the ability to distinguish whether the circuit is suitable to be manually soldered or desoldered;
- .9 tracing and repair of faults to component level, where practicable, and to board/module level in other cases;

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

- .10 recognition and correction of conditions contributing to the fault occurring;
- .11 maintenance procedures, both preventive and corrective, for all GMDSS communication equipment and radionavigation equipment; and
- .12 methods of alleviating electrical and electromagnetic interference such as bonding, shielding and bypassing.

Miscellaneous

- 14 Knowledge of and/or training in:
- .1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;
 - .2 world geography, especially the principal shipping routes, services of rescue coordination centres (RCCs) and related communication routes;
 - .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
 - .4 fire prevention and fire fighting, with particular reference to the radio installation;
 - .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
 - .6 first aid, including heart-respiration revival techniques; and
 - .7 coordinated universal time (UTC), global time zones and the international date line.

TRAINING RELATED TO THE SECOND-CLASS RADIOELECTRONIC CERTIFICATE

General

15 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

16 The training should be relevant to the provisions of the STCW Convention and the SOLAS Convention currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 17 to 28 hereunder*.

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

Theory

17 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS, sufficient to support the practical training provisions given in paragraph 27 below.

18 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

19 Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the provisions given in paragraphs 20 to 24 below.

20 General theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraph and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radio beacons (EPIRBs), marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of other equipment generally used for radionavigation, with particular reference to maintaining the equipment in service.

21 General knowledge of factors that affect system reliability, availability, maintenance procedures and proper use of test equipment.

22 General knowledge of microprocessors and fault diagnosis in systems using microprocessors.

23 General knowledge of control systems in the GMDSS radio equipment, including testing and analysis.

24 Knowledge of the use of computer software for the GMDSS radio equipment and methods for correcting faults caused by loss of software control of the equipment.

Regulations and documentation

25 Knowledge of:

- .1 the SOLAS Convention and the Radio Regulations, with particular emphasis on:
 - .1.1 distress, urgency and safety radiocommunications,
 - .1.2 avoiding harmful interference, particularly with distress and safety traffic, and
 - .1.3 the prevention of unauthorized transmissions;
- .2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

- .3 the use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

26 Training should be given in:

- .1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;
- .2 procedures for using propagation-prediction information to establish optimum frequencies for communications;
- .3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records;
- .4 use of the international phonetic alphabet;
- .5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;
- .6 ship reporting systems and procedures;
- .7 radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;
- .8 radio medical systems and procedures; and
- .9 causes of false distress alerts and means to avoid them.*

Practical

27 Practical training, supported by appropriate laboratory work, should be given in:

- .1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;
- .2 safe operation of all the GMDSS communication equipment and ancillary devices, including safety precautions;
- .3 adequate and accurate keyboard skills for the satisfactory exchange of communications;
- .4 operational techniques for:

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

- .4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,
- .4.2 antenna adjustment and realignment, as appropriate,
- .4.3 use of radio life-saving appliances, and
- .4.4 use of emergency position-indicating radio beacons (EPIRBs);
- .5 antenna rigging, repair and maintenance, as appropriate;
- .6 reading and understanding pictorial, logic and module interconnection diagrams;
- .7 use and care of those tools and test instruments necessary to carry out at-sea electronic maintenance at the level of replacement of a unit or module;
- .8 basic manual soldering and desoldering techniques and their limitations;
- .9 tracing and repair of faults to board/module level;
- .10 recognition and correction of conditions contributing to the fault occurring;
- .11 basic maintenance procedures, both preventive and corrective, for all the GMDSS communication equipment and radionavigation equipment; and
- .12 methods of alleviating electrical and electromagnetic interference, such as bonding, shielding and bypassing.

Miscellaneous

- 28 Knowledge of, and/or training in:
- .1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;
 - .2 world geography, especially the principal shipping routes, services of rescue co-ordination centres (RCCs) and related communication routes;
 - .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
 - .4 fire prevention and fire fighting, with particular reference to the radio installation;
 - .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
 - .6 first aid, including heart-respiration revival techniques; and
 - .7 coordinated universal time (UTC), global time zones and the international date line.

TRAINING RELATED TO THE GENERAL OPERATOR'S CERTIFICATE

General

29 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

30 The training should be relevant to the provisions of the STCW Convention, the Radio Regulations and the SOLAS Convention currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 31 to 36 hereunder*.

Theory

31 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS sufficient to support the practical training provisions given in paragraph 35 below.

32 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

Regulations and documentation

33 Knowledge of:

- .1 the SOLAS Convention and the Radio Regulations, with particular emphasis on:
 - .1.1 distress, urgency and safety radiocommunications,
 - .1.2 avoiding harmful interference, particularly with distress and safety traffic, and
 - .1.3 prevention of unauthorized transmissions;
- .2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and
- .3 use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

*

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

Watchkeeping and procedures

34 Training should be given in:

- .1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;
- .2 procedures for using propagation-prediction information to establish optimum frequencies for communications;
- .3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records;
- .4 use of the international phonetic alphabet;
- .5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;
- .6 ship reporting systems and procedures;
- .7 radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;
- .8 radio medical systems and procedures; and
- .9 causes of false distress alerts and means to avoid them.*

Practical

35 Practical training should be given in:

- .1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;
- .2 safe operation of all the GMDSS communications equipment and ancillary devices, including safety precautions;
- .3 accurate and adequate keyboard skills for the satisfactory exchange of communications; and
- .4 operational techniques for:
 - .4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,
 - .4.2 antenna adjustment and realignment as appropriate,

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

- .4.3 use of radio life-saving appliances, and
- .4.4 use of emergency position-indicating radio beacons (EPIRBs).

Miscellaneous

- 36 Knowledge of, and/or training in:
- .1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;
 - .2 world geography, especially the principal shipping routes, services of rescue coordination centres (RCCs) and related communication routes;
 - .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
 - .4 fire prevention and fire-fighting, with particular reference to the radio installation;
 - .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
 - .6 first aid, including heart-respiration revival techniques; and
 - .7 coordinated universal time (UTC), global time zones and the international date line.

TRAINING RELATED TO THE RESTRICTED OPERATOR'S CERTIFICATE

General

37 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

38 The training should be relevant to the provisions of the STCW Convention, the Radio Regulations and the SOLAS Convention currently in force, with particular attention given to provisions for the global maritime distress and safety system (GMDSS). In developing training guidance, account should be taken of at least the knowledge and training given in paragraphs 39 to 44 hereunder*.

Theory

39 Knowledge of the general principles and basic factors, including VHF range limitation and antenna height effect necessary for safe and efficient use of all sub-systems and equipment required in GMDSS in sea area A1, sufficient to support the training given in paragraph 43 below.

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

40 Knowledge of the use, operation and service areas of GMDSS sea area A1 sub-systems, e.g., navigational and meteorological warning systems and the appropriate communication circuits.

Regulations and documentation

41 Knowledge of:

- .1 those parts of the SOLAS Convention and the Radio Regulations relevant to sea area A1, with particular emphasis on:
 - .1.1 distress, urgency and safety radiocommunications,
 - .1.2 avoiding harmful interference, particularly with distress and safety traffic, and
 - .1.3 prevention of unauthorized transmissions;
- .2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings and weather broadcasts in the Maritime Mobile Service in sea area A1; and
- .3 use of the International Code of Signals and the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

42 Training should be given in:

- .1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems used in sea area A1;
- .2 VHF communication procedures for:
 - .2.1 radiocommunication watchkeeping, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures, and radio records,
 - .2.2 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency, and
 - .2.3 the digital selective calling system;
- .3 use of the international phonetic alphabet;
- .4 ship reporting systems and procedures;
- .5 VHF radiocommunication procedures of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;

- .6 radio medical systems and procedures; and
- .7 causes of false distress alerts and means to avoid them*.

Practical

43 Practical training should be given in:

- .1 correct and efficient operation of the GMDSS sub-systems and equipment prescribed for ships operating in sea area A1 under normal propagation conditions and under typical interference conditions;
- .2 safe operation of relevant GMDSS communication equipment and ancillary devices, including safety precautions; and
- .3 operational techniques for use of:
 - .3.1 VHF, including channel, squelch, and mode adjustment, as appropriate,
 - .3.2 radio life-saving appliances,
 - .3.3 emergency position-indicating radio beacons (EPIRBs), and
 - .3.4 NAVTEX receivers.

Miscellaneous

44 Knowledge of, and/or training in:

- .1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;
- .2 services of rescue co-ordination centres (RCCs) and related communication routes;
- .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
- .4 fire prevention and fire fighting, with particular reference to the radio installation;
- .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards; and
- .6 first aid, including heart-respiration revival techniques.

* See COM/Circ.127 – Guidelines for avoiding false distress alerts.

TRAINING RELATED TO MAINTENANCE OF GMDSS INSTALLATIONS ON BOARD SHIPS

General

45 Reference is made to the maintenance requirements of SOLAS Convention regulation IV/15, and to IMO resolution A.702(17) on Radio maintenance guidelines for the GMDSS related to sea areas A3 and A4, which includes in its annex the following provision:

“4.2 The person designated to perform functions for at-sea electronic maintenance should either hold an appropriate certificate as specified by the Radio Regulations, as required, or have equivalent at-sea electronic maintenance qualifications, as may be approved by the Administration, taking into account the recommendations of the Organization on the training of such personnel.”

46 The following guidance on equivalent electronic maintenance qualifications is provided for use by Administrations as appropriate.

47 Training as recommended below does not qualify any person to be an operator of GMDSS radio equipment who does not hold an appropriate Radio Operator’s Certificate.

Maintenance training equivalent to the First-Class Radioelectronic Certificate

48 In determining training equivalent to the elements of the listed First-Class Radioelectronic Certificate:

- .1 the theory content should cover at least the subjects given in paragraphs 3 to 10;
- .2 the practical content should cover at least the subjects given in paragraph 13; and
- .3 the miscellaneous knowledge included should cover at least the subjects given in paragraph 14.

Maintenance training equivalent to the Second-Class Radioelectronic Certificate

49 In determining training equivalent to the maintenance elements of the Second-Class Radioelectronic Certificate:

- .1 the theory content should cover at least the subjects given in paragraphs 17 to 24;
- .2 the practical content should cover at least the subjects given in paragraph 27; and
- .3 the miscellaneous knowledge included should cover at least the subjects given in paragraph 28.

CHAPTER V

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

Section B-V/1

Guidance regarding the training and qualifications of tanker personnel

Person with immediate responsibility

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

FAMILIARIZATION TRAINING FOR ALL TANKER PERSONNEL

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

Regulations

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

Health hazards and precautions to be taken

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

Fire prevention and fire fighting

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

Pollution prevention

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

Safety equipment and its use

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

Emergency procedures

- 8 Familiarization with the emergency plan procedures.

PROOF OF QUALIFICATION

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

GUIDANCE REGARDING APPROVED ONBOARD TRAINING

General

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

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

- .1 emphasize practical “hands on experience” and be relative to the employment of the seafarer, i.e. the training of deck and engineering departments may be different;
- .2 be under the supervision of personnel qualified and experienced in the handling, characteristics and safety procedures of the cargoes being carried by the vessel;
- .3 be on board the tanker carrying products relative to the tanker Certificate of Proficiency/Endorsement being sought and should be such that the specialist equipment is brought into operation but may be on a ballast passage between cargoes for part of that period;
- .4 take part in at least three loading and discharge operations; and*
- .5 at least cover the matters set out in “Onboard training criteria” in paragraph 19.

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

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

Onboard training programme

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

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

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

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

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

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

Onboard training criteria

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

.1 Safety

.1.1 All tanker types

.1 Ship’s safety-management system

.2 Cargo-specific fire-fighting equipment and procedures

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

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

.1.2 Additional for liquefied gas tankers

- .1 Dangers and precautions related to handling and storage of cargoes at cryogenic temperatures

.2 Construction, cargo, cargo tanks and pipelines

.2.1 All tanker types

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

.2.2 Additional for liquefied gas tankers

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

.3 Trim and stability

.3.1 All tanker types

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

.4 Cargo operations

.4.1 All tanker types

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

.4.2 Additional for chemical tankers

- .1 Polymerization, cargo compatibility, tank coating compatibility and other reactions
- .2 Functions of inhibitors and catalysts
- .3 Vapour/gas dispersion

.4.3 Additional for liquefied gas tankers

- .1 Polymerization, cargo compatibility, tank coating compatibility and other reactions
- .2 Functions of inhibitors and catalysts
- .3 Causes of backpressure and pressure surge effects
- .4 Use of boil-off gas as a fuel
- .5 Vapour/gas dispersion
- .6 Purging and cool-down operations
- .7 Operation and maintenance of re-liquefaction equipment
- .8 Understanding and use of the custody transfer system

.4.4 Additional for oil tankers

- .1 Crude oil washing systems

.5 Tank washing/cleaning

.5.1 All tanker types

- .1 Tank cleaning systems and equipment fitted on the tanker
- .2 Pre-planning of tank washing/cleaning operations
- .3 Tank washing procedures, including purging and inerting

- .4 Control of slops/waste product
- .5 Electro-static hazards
- .6 Cleanliness requirements
- .7 Maintenance requirements

.5.2 Additional for chemical tankers

- .1 Removal of inhibitors and residues
- .2 Use of absorption, cleaning agents and detergents

.5.3 Additional for liquefied gas tankers

- .1 Hot-gassing/boil-off of liquid residues and regassification process

.6 Inert gas systems

.6.1 All tanker types

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

.7 Pollution prevention and control

.7.1 All tanker types

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

.8 Gas-detection equipment and instruments

.8.1 All tanker types

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

.8.2 Additional for liquefied gas tankers

- .1 Operation and maintenance of hull temperature measurement

.9 Publications

.9.1 All tanker types

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

- .2 Operating and maintenance manuals specific to the equipment on board
- .3 Established industrial standards and code of safe working practice (e.g., ICS, OCIMF, SIGTTO)

Section B-V/1-1

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

OIL TANKER TRAINING

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

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

CHEMICAL TANKER TRAINING

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

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

Section B-V/1-2

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

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

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

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

Section B-V/2

Guidance regarding training of seafarers on passenger ships

ENHANCED FIRE FIGHTING

1 For officers and crew on passenger ships, additional training should be provided highlighting the difficulties of fighting fires, including access to confined spaces and prevention of the spread of fire to adjoining spaces.

DAMAGE CONTROL

2 In developing standards of competency given in sections A-II/1, A-II/2 and A-III/2 to achieve the necessary level of theoretical knowledge, understanding and proficiency in damage control and watertight integrity, companies and training institutions should take into account the minimum knowledge, understanding and proficiency for damage control and watertight integrity as given below:

Competence

Minimize the risk of flooding and maintain a state of readiness to respond to emergency situations involving damage to the watertight integrity of the ship.

Knowledge, understanding and proficiency

Shipboard damage control plans and organization.

Damage control systems, equipment (lockers) and emergency escape routes

The key elements in maintaining stability and watertight integrity.

Importance of securing flooding and maintaining watertight boundaries.

Actions to be taken aboard a ship in the event of an explosion, grounding, collision, or fire

Damage control techniques consistent with equipment found on board the ship bilge systems and pumps.

Section B-V/a*

Guidance regarding additional training for masters and chief mates of large ships and ships with unusual manoeuvring characteristics

- 1 It is important that masters and chief mates should have had relevant experience and training before assuming the duties of master or chief mate of large ships or ships having unusual manoeuvring and handling characteristics significantly different from those in which they have recently served. Such characteristics will generally be found in ships which are of considerable deadweight or length or of special design or of high speed.
- 2 Prior to their appointment to such a ship, masters and chief mates should:
 - .1 be informed of the ship's handling characteristics by the company, particularly in relation to the knowledge, understanding and proficiency listed under ship manoeuvring and handling in column 2 of table A-II/2 – Specification of the minimum standard of competence for masters and chief mates on ships of 500 gross tonnage or more; and
 - .2 be made thoroughly familiar with the use of all navigational and manoeuvring aids fitted in the ship concerned, including their capabilities and limitations.
- 3 Before initially assuming command of one of the ships referred to above, the prospective master should have sufficient and appropriate general experience as master or chief mate, and either:
 - .1 have sufficient and appropriate experience manoeuvring the same ship under supervision or in manoeuvring a ship having similar manoeuvring characteristics; or
 - .2 have attended an approved ship handling simulator course on an installation capable of simulating the manoeuvring characteristics of such a ship.**
- 4 The additional training and qualifications of masters and chief mates of dynamically supported and high-speed craft should be in accordance with the relevant guidelines of the IMO Code of Safety for Dynamically Supported Craft and the IMO International Codes of Safety for High-Speed Craft (1994 HSC Code and 2000 HSC Code), as appropriate.

Section B-V/b*

Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in solid form in bulk

- 1 Training should be divided into two parts, a general part on the principles involved and a part on the application of such principles to ship operation. All training and instruction should be given by properly qualified and suitably experienced personnel and cover at least the subjects given in paragraphs 2 to 14 hereunder.

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

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

PRINCIPLES

Characteristics and properties

2 The important physical characteristics and chemical properties of dangerous and hazardous substances, sufficient to give a basic understanding of the intrinsic hazards and risks involved.

Classification of materials possessing chemical hazards

3 IMO dangerous goods classes 4 to 9 and the hazards associated with each class; and materials hazardous only in bulk (MHB) outlined in the International Maritime Solid Bulk Cargoes (IMSBC) Code.

Health hazards

4 Dangers from skin contact, inhalation, ingestion and radiation.

Conventions, regulations and recommendations

5 General familiarization with the relevant requirements of chapters II-2 and VII of the 1974 SOLAS Convention, as amended.

6 General use of and familiarization with the International Maritime Solid Bulk Cargoes (IMSBC) Code, with particular reference to:

- .1 safety of personnel, including safety equipment, measuring instruments, their use and practical application and interpretation of results;
- .2 hazards from cargoes which have a tendency to shift; and
- .3 materials possessing chemical hazards.

SHIPBOARD APPLICATION

Class 4.1 – Flammable solids

Class 4.2 – Substances liable to spontaneous combustion

Class 4.3 – Substances which, in contact with water, emit flammable gases

7 Carriage, stowage and control of temperature to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to self-reactive and related substances; segregation requirements to prevent heating and ignition; the emission of poisonous or flammable gases and the formation of explosive mixtures.

Class 5.1 – Oxidizing substances

8 Carriage, stowage and control of temperature to prevent decomposition and possible explosion; stowage categories; general stowage precautions and segregation requirements to ensure separation from combustible material, from acids and heat sources to prevent fire, explosion and the formation of toxic gases.

Class 6.1 – Toxic substances

9 Contamination of foodstuffs, working areas and living accommodation and ventilation.

Class 7 – Radioactive material

10 Transport index; types of ores and concentrates; stowage and segregation from persons, undeveloped photographic film and plates and foodstuffs; stowage categories; general stowage requirements; special stowage requirements; segregation requirements and separation distances; segregation from other dangerous goods.

Class 8 – Corrosive substances

11 Dangers from wetted substances.

Class 9 – Miscellaneous dangerous substances and articles

12 Examples and associated hazards; the hazards of materials hazardous only in bulk (IMSBC Code); general and specific stowage precautions; working and transport precautions; segregation requirements.

Safety precautions and emergency procedures

13 Electrical safety in cargo spaces; precautions to be taken for entry into enclosed spaces that may contain oxygen-depleted, poisonous or flammable atmospheres; the possible effects of fire in shipments of substances of each class; use of the Emergency Response Procedures for Ships Carrying Dangerous Goods; emergency plans and procedures to be followed in case of incidents involving dangerous and hazardous substances and the use of individual entries in the International Maritime Solid Bulk Cargoes (IMSBC) Code, as appropriate, in this respect.

Medical first aid

14 The IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) and its use and application in association with other guides and medical advice by radio.

Section B-V/c*

Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in packaged form

1 Training should be divided into two parts, a general part on the principles involved and a part on the application of such principles to ship operation. All training and instruction should be given by properly qualified and suitably experienced personnel and cover at least the subjects given in paragraphs 2 to 19 hereunder.

PRINCIPLES

Characteristics and properties

2 The important physical characteristics and chemical properties of dangerous and hazardous substances, sufficient to give a basic understanding of the intrinsic hazards and risks involved.

Classification of dangerous and hazardous substances and materials possessing chemical hazards

3 **IMO dangerous goods classes 1 to 9 and the hazards associated with each class.**

Health hazards

4 Dangers from skin contact, inhalation, ingestion and radiation.

Conventions, regulations and recommendations

5 General familiarization with the relevant requirements of chapters II-2 and VII of the 1974 SOLAS Convention and of Annex III of MARPOL 73/78, including its implementation through the IMDG Code.

Use of and familiarization with the International Maritime Dangerous Goods (IMDG) Code

6 General knowledge of the requirements of the IMDG Code concerning declaration, documentation, packing, labelling and placarding; freight container and vehicle packing; portable tanks, tank containers and road tank vehicles, and other transport units used for dangerous substances.

7 Knowledge of identification, marking and labelling for stowage, securing, separation and segregation in different ship types mentioned in the IMDG Code.

8 Safety of personnel, including safety equipment, measuring instruments, their use and practical application and the interpretation of results.

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

SHIPBOARD APPLICATION

Class 1 – Explosives

9 The six hazard divisions and 13 compatibility groups; packagings and magazines used for carriage of explosives; structural serviceability of freight containers and vehicles; stowage provisions, including specific arrangements for on-deck and under-deck stowage; segregation from dangerous goods of other classes within class 1 and from non-dangerous goods; transport and stowage on passenger ships; suitability of cargo spaces; security precautions; precautions to be taken during loading and unloading.

Class 2 – Gases (compressed, liquefied, or dissolved under pressure), flammable, non-flammable, non-toxic and toxic

10 Types of pressure vessels and portable tanks, including relief and closing devices used; stowage categories; general stowage precautions, including those for flammable and poisonous gases and gases which are marine pollutants.

Class 3 – Flammable liquids

11 Packagings, tank containers, portable tanks and road tank vehicles; stowage categories, including the specific requirements for plastics receptacles; general stowage precautions, including those for marine pollutants; segregation requirements; precautions to be taken when carrying flammable liquids at elevated temperatures.

Class 4.1 – Flammable solids

Class 4.2 – Substances liable to spontaneous combustion

Class 4.3 – Substances which, in contact with water, emit flammable gases

12 Types of packagings; carriage and stowage under controlled temperatures to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to self-reactive and related substances, desensitized explosives and marine pollutants; segregation requirements to prevent heating and ignition, the emission of poisonous or flammable gases and the formation of explosive mixtures.

Class 5.1 – Oxidizing substances

Class 5.2 – Organic peroxides

13 Types of packagings; carriage and stowage under controlled temperatures to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to marine pollutants; segregation requirements to ensure separation from combustible material, from acids and heat sources to prevent fire, explosion and the formation of toxic gases; precautions to minimize friction and impact which can initiate decomposition.

Class 6.1 – Toxic substances

Class 6.2 – Infectious substances

14 Types of packagings; stowage categories; general stowage precautions, including those applicable to toxic, flammable liquids and marine pollutants; segregation requirements, especially considering that the characteristic common to these substances is their ability to cause death or serious injury to human health; decontamination measures in the event of spillage.

Class 7 – Radioactive material

15 Types of packagings; transport index in relation to stowage and segregation; stowage and segregation from persons, undeveloped photographic film and plates and foodstuffs; stowage categories; general stowage requirements; segregation requirements and separation distances; segregation from other dangerous goods.

Class 8 – Corrosive substances

16 Types of packagings; stowage categories; general stowage precautions, including those applicable to corrosive, flammable liquids and marine pollutants; segregation requirements, especially considering that the characteristic common to these substances is their ability to cause severe damage to living tissue.

Class 9 – Miscellaneous dangerous substances and articles

17 Examples of hazards, including marine pollution.

Safety precautions and emergency procedures

18 Electrical safety in cargo spaces; precautions to be taken for entry into enclosed spaces that may contain oxygen-depleted, poisonous or flammable atmospheres; the possible effects of spillage or fire in shipments of substances of each class; consideration of events on deck or below deck; use of the IMO Emergency Response Procedures for Ships Carrying Dangerous Goods; emergency plans and procedures to be followed in case of incidents involving dangerous substances.

Medical first aid

19 The IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) and its use and application in association with other guides and medical advice by radio.

Section B-V/d*

Guidance on application of the provisions of the STCW Convention to mobile offshore units (MOUs)

1 The provisions of the STCW Convention apply to the maritime personnel of self-propelled MOUs proceeding on voyages.

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

2 The provisions of the STCW Convention do not apply to non-self-propelled MOUs or to MOUs on station.

3 When considering appropriate standards of training and certification when an MOU is on station, the country of registry should take account of relevant IMO recommendations. In particular, all maritime crew members on self-propelled MOUs and, where required, on other units should meet the requirements of the STCW Convention, as amended.

4 Self-propelled MOUs proceeding on international voyages are required to carry safe manning documents.

5 MOUs on station are subject to the national legislation of the coastal State in whose Exclusive Economic Zone (EEZ) they are operating. Such coastal States should also take account of relevant IMO recommendations and should not prescribe higher standards for MOUs registered in other countries than the standards applied to MOUs registered in that coastal State.

6 All special personnel employed on board MOUs (whether or not self-propelled) should be provided with appropriate familiarization and basic safety training in accordance with relevant IMO recommendations.

Section B-V/e*

Guidance regarding training and qualifications of masters and officers in charge of a navigational watch on board offshore supply vessels

1 It is important that masters and officers involved in offshore supply operations should have relevant experience or training before assuming their duties on offshore supply vessels. The focus should be on onboard operational experience or a combination of operational experience and simulator training.

2 Masters and officers should understand the unique manoeuvring and handling characteristics common to offshore supply vessels.

3 Prior to performing offshore supply operations, the master and officers should:

.1 have knowledge of the offshore industry and the terms used in the various operations;

.2 understand the importance of maintaining a safe working distance at all times when working in an offshore location/installation;

.3 have knowledge of vessel manoeuvring and station-keeping under various weather conditions;

.4 understand the specific design parameters of the vessels; and

.5 understand the need to have unrestricted oversight and views of work areas.

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

- 4 While on board an offshore supply vessel, the master and officers should:
 - .1 have knowledge of the handling characteristics and behaviour of vessels fitted with various propulsion arrangements; and
 - .2 be capable of operating the offshore supply vessel in close proximity to an offshore installation and other vessels.
- 5 Masters should understand the need for other personnel on board who are involved in performing offshore supply operations to be familiarized with their duties.

Offshore supply vessels performing anchor-handling operations

- 6 It is important that masters and officers in charge of a navigational watch on board supply vessels involved in anchor-handling operations have relevant experience and training.
- 7 Prior to performing anchor-handling operations, masters and officers in charge of a navigational watch should:
 - .1 be well informed of the ship's handling characteristics in relation to anchor-handling, including, but not limited to:
 - .1.1 navigation and position-holding,
 - .1.2 ship-handling,
 - .1.3 thorough knowledge of the stability of offshore supply vessels, in particular the combination of low angle of GZ_{max} , low open deck and large external forces. Use of loading calculators and the conflict between a rigid and stiff ship and good work environment on deck. Potential reduction of stability from use of anti-rolling devices, and
 - .1.4 operations in hazardous oil-field areas, including locating any pipelines or other structures on the seabed in the area where anchors or other mooring equipment is likely to be used; and
 - .2 be made thoroughly familiar with the use of all instruments and systems fitted in the ship concerned and involved in anchor-handling, including their capabilities and limitations, including, but not limited to:
 - .2.1 use of various thrusters, conventional or azimuth propulsion,
 - .2.2 pickup, handling, heavy lifting, towing out, anchor-handling and laying of anchors for offshore rigs, barges and installations,
 - .2.3 towing of rigs, barges and other vessels,
 - .2.4 operation of lifting and towing winches with up to 600 metric tons pull,

.2.5 detailed thorough knowledge of the basis of operation of towing- and anchor-handling winches; in particular, functions of load-limiting devices and release systems and associated equipment as towing pins and stoppers, and

.2.6 the significant difference between emergency release of towing hooks and winches.

8 Masters and officers in charge of a navigational watch in charge of anchor-handling should have sufficient and appropriate experience, either by having been supervised or trained in a simulator.

Section B-V/f*

Guidance on the training and experience for personnel operating dynamic positioning systems

1 Dynamic positioning is defined as the system whereby a self-propelled vessel's position and heading is automatically controlled by using its own propulsion units.

2 Personnel engaged in operating a Dynamic Positioning (DP) system should receive relevant training and practical experience. Theoretical elements of this training should enable Dynamic Positioning Operators (DPOs) to understand the operation of the DP system and its components. Knowledge, understanding and experience gained should enable personnel to operate vessels safely in DP, with due regard for safety of life at sea and protection of the marine environment.

3 The content of training and experience should include coverage of the following components of a DP system:

- .1 DP control station;
- .2 power generation and management;
- .3 propulsion units;
- .4 position reference systems;
- .5 heading reference systems;
- .6 environmental reference systems; and
- .7 external force reference systems, such as hawser tension gauges.

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

4 Training and experience should cover the range of routine DP operations, as well as the handling of DP faults, failures, incidents and emergencies, to ensure that operations are continued or terminated safely. Training should not be limited to DPOs and DP masters only; other personnel on board, such as electro-technical and engineer officers, may require additional training and experience to ensure that they are able to carry out their duties on a DP vessel. Consideration should be given to conducting appropriate DP drills as a part of onboard training and experience. DPOs should be knowledgeable of the type and purpose of documentation associated with DP operations, such as operational manuals, Failure Modes and Effects Analysis (FMEAs) and capability plots.

5 All training should be given by properly qualified and suitably experienced personnel.

6 Upon appointment to a vessel operating in DP mode, the master, DPOs and other DP-trained personnel should be familiarized with the specific equipment fitted on and the characteristics of the vessel. Particular consideration should be given to the nature of the work of the vessel and the importance of the DP system to this work.

Section B-V/g*

*Guidance regarding training of masters and officers for ships operating in polar waters***

1 It is important that masters, officers in charge of a navigational watch and officers in charge of an engineering watch on board ships operating in polar waters should have relevant experience and training, as follows:

.1 Prior to being assigned duties on board such ships:

.1.1 For masters and officers in charge of a navigational watch, the training should provide basic knowledge on at least the subjects given in paragraphs 2 to 11 hereunder, and

.1.2 For officers in charge of an engineering watch, the training should provide basic knowledge on at least the subjects given in paragraphs 3, 6, 10 and 11 hereunder.

.2 Masters and Chief Engineer Officers should have sufficient and appropriate experience in operating ships in polar waters.

Ice characteristics – ice areas

2 Interpretation of different ice-charts and awareness of limitations in meteorology and oceanography data, ice physics, formation, growth, ageing and stage of melt; ice types and concentrations; ice pressure; friction from snow-covered ice; implications of spray-icing and icing up; precautions against icing up and mitigation of consequences; ice regimes in different regions and different seasons, including the differences between the Arctic and the Antarctic;

* Note there are no corresponding regulations in the Convention or sections in part A of the Code for sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f and B-V/g.

** Refer to resolution A.1024(26) on Guidelines for ships operating in polar waters.

recognition of consequences of rapid change in ice and weather conditions; movement of icebergs and pack ice.

Ship's performance in ice and cold climate

3 Vessel characteristics; vessel types, hull designs; ice-strengthening requirements; ice-class in different classification societies – polar class and local regulations; limitations of ice-classes; winterization and preparedness of vessel; low-temperature system performance.

Voyage and passage planning for a ship in ice*

4 Development of safe routeing and passage planning to avoid ice where possible, including interpreting various forms of ice imagery and data to assist in the preparation of a strategic passage planning; entering ice from open water to avoid icebergs and dangerous ice conditions; navigation, determining when it is safe or not safe to enter areas containing ice or icebergs due to darkness, swell, fog or pressure ice.

Operating and handling a ship in ice

5 Preparations and risk assessment before approaching ice-infested waters; unassisted operation of vessels with different ice-class in different ice-types; safe speed in the presence of ice and icebergs; communications with an icebreaker and other vessels; navigation in various ice concentrations and coverage; awareness of the increase in energy of movement; use of icebergs for shelter and access through packed ice.

6 Use of different type of propulsion system and rudder, including awareness of system strength and capacity limitations; use of heeling and trim systems, engine loads and cooling problems.

Regulations and recommendations

7 Local requirements for entering different regions, including the Antarctic Treaty; international regulations and recommendations.

Equipment limitations

8 Use of and hazards associated with terrestrial navigational aids in polar waters; high-latitude compass errors; discrimination of radar targets and ice-features in ice-clutter; limitations of electronic positioning systems at high latitude; limitations in nautical charts and pilot descriptions; limitations in communication systems.

Safety precautions and emergency procedures

9 Availability of hydrographic data sufficient for safe navigation; precautions when navigating in poorly charted waters; limitations of search and rescue readiness and responsibility, including GMDSS area A4 and its SAR communication facility limitation; awareness of contingency planning; knowledge of towing procedures; value of contact with other ships and

* Refer to resolution A.999(25) on Guidelines on voyage planning for passenger ships operating in remote areas.

local SAR organization; recognizing dangers when crews are exposed to low temperatures; procedures and techniques for abandoning the ship and survival on the ice; crew-fatigue problems due to noise and vibrations; carriage of additional resources such as bunkers, food and extra clothing; awareness of the additional severity of consequences of incidents in polar waters.

10 Establishing safe working procedures; awareness of the most common hull and equipment damage and how to avoid them; fire-fighting systems limitations.

Environmental considerations

11 Sensitive sea areas regarding discharge; areas where shipping is prohibited or should be avoided; special areas in MARPOL; oil-spill equipment limitations; plan for coping with increased volumes of garbage, bilge water, sludge, sewage, etc.; consequences of pollution in a cold climate.

CHAPTER VI

Guidance regarding emergency, occupational safety, security, medical care and survival functions

Section B-VI/1

Guidance regarding *mandatory requirements for safety familiarization and basic training and instruction for all seafarers*

FIRE PREVENTION AND FIRE FIGHTING

1 The training in fire prevention and fire fighting required by section A-VI/1 should include at least the theoretical and practical elements itemized in paragraphs 2 to 4 hereunder*.

Theoretical training

- 2 The theoretical training should cover:
- .1 the three elements of fire and explosion (the fire triangle): fuel; source of ignition; oxygen;
 - .2 ignition sources: chemical; biological; physical;
 - .3 flammable materials: flammability; ignition point; burning temperature; burning speed; thermal value; lower flammable limit (LFL); upper flammable limit (UFL); flammable range; inerting; static electricity; flashpoint; auto-ignition;
 - .4 fire hazard and spread of fire by radiation, convection and conduction;
 - .5 reactivity;
 - .6 classification of fires and applicable extinguishing agents;
 - .7 main causes of fire on board ships: oil leakage in engine-room; cigarettes; overheating (bearings); galley appliances (stoves, flues, fryers, hotplates, etc.); spontaneous ignition (cargo, wastes, etc.); hot work (welding, cutting, etc.); electrical apparatus (short circuit, non-professional repairs); reaction, self-heating and auto-ignition; arson; static electricity;
 - .8 fire prevention;
 - .9 fire- and smoke-detection systems; automatic fire alarms;

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

- .10 fire-fighting equipment, including:
 - .10.1 fixed installations on board and their locations; fire mains, hydrants; international shore connection; smothering installations, carbon dioxide (CO₂), foam; pressure water spray system in special category spaces, etc.; automatic sprinkler system; emergency fire pump; emergency generator; chemical powder applicants; general outline of required and available mobile apparatus; high-pressure fog system; high-expansion foam; new developments and equipment,
 - .10.2 firefighter's outfit, personal equipment; breathing apparatus; resuscitation apparatus; smoke helmet or mask; fireproof lifeline and harness; and their location on board, and
 - .10.3 general equipment, including fire hoses, nozzles, connections, fire axes; portable fire extinguishers; fire blankets;
- .11 construction and arrangements, including escape routes; means for gas-freeing tanks; Class A, B and C divisions; inert gas systems;
- .12 ship fire-fighting organization, including general alarm; fire control plans, muster stations and duties of individuals; communications, including ship–shore when in port; personnel safety procedures; periodic shipboard drills; patrol systems;
- .13 practical knowledge of resuscitation methods;
- .14 fire-fighting methods, including sounding the alarm; locating and isolating; jettisoning; inhibiting; cooling; smothering; extinguishing; reflash watch; smoke extraction; and
- .15 fire-fighting agents, including water, solid jet, spray, fog, flooding; high-, medium- and low-expansion foam; carbon dioxide (CO₂); aqueous-film-forming foam (AFFF); dry chemical powder; new developments and equipment.

Practical training

3 The practical training given below should take place in spaces which provide truly realistic training conditions (e.g., simulated shipboard conditions), and whenever possible and practical should also be carried out in darkness as well as by daylight and should allow the trainees to acquire the ability to:

- .1 use various types of portable fire extinguishers;
- .2 use self-contained breathing apparatus;
- .3 extinguish smaller fires, e.g., electrical fires, oil fires and propane fires;

- .4 extinguish extensive fires with water (jet and spray nozzles);
- .5 extinguish fires with either foam, powder or any other suitable chemical agent;
- .6 enter and pass through, with lifeline but without breathing apparatus, a compartment into which high-expansion foam has been injected;
- .7 fight fire in smoke-filled enclosed spaces, wearing self-contained breathing apparatus;
- .8 extinguish fire with water fog or any other suitable fire-fighting agent in an accommodation room or simulated engine-room with fire and heavy smoke;
- .9 extinguish an oil fire with fog applicator and spray nozzles; dry chemical powder or foam applicators;
- .10 effect a rescue in a smoke-filled space, wearing breathing apparatus.

General

4 Trainees should also be made aware of the necessity of maintaining a state of readiness on board.

ELEMENTARY FIRST AID*

5 The training in elementary first aid required by regulation VI/1 as part of the basic training should be given at an early stage in vocational training, preferably during pre-sea training, to enable seafarers to take immediate action upon encountering an accident or other medical emergency until the arrival of a person with first-aid skills or the person in charge of medical care on board.

PERSONAL SAFETY AND SOCIAL RESPONSIBILITIES*

6 Administrations should bear in mind the significance of communication and language skills in maintaining safety of life and property at sea and in preventing marine pollution. Given the international character of the maritime industry, the reliance on voice communications from ship to ship and from ship to shore, the increasing use of multinational crews, and the concern that crew members should be able to communicate with passengers in an emergency, adoption of a common language for maritime communications would promote safe practice by reducing the risk of human error in communicating essential information.

7 Although not universal, by common practice English is rapidly becoming the standard language of communication for maritime safety purposes, partly as a result of the use of the IMO Standard Marine Communication Phrases.

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

8 Administrations should consider the benefits of ensuring that seafarers have an ability to use at least an elementary English vocabulary, with an emphasis on nautical terms and situations.

Section B-VI/2

Guidance regarding certification for proficiency in survival craft, rescue boats and fast rescue boats

1 Before training is commenced, the requirement of medical fitness, particularly regarding eyesight and hearing, should be met by the candidate.

2 The training should be relevant to the provisions of the International Convention for the Safety of Life at Sea (SOLAS), as amended*.

3 Parties may also accept onboard training and experience (such as participation in drills) for maintaining the required standard of competence of table A-VI/2-1, in the areas outlined in section A-VI/2, paragraphs 6.1.2, 6.1.3, 6.1.4, 6.2.1, and 10.1.5. Administrations should bear in mind that onboard training in these areas can only be carried out under good weather conditions and port regulations permitting.

Section B-VI/3

Guidance regarding training in advanced fire fighting

(No provisions)

Section B-VI/4

Guidance regarding requirements in medical first aid and medical care

1 Training programmes for seafarers designated to undertake the tasks, duties and responsibilities listed in column 1 of table A-VI/4-1 to provide medical first aid on board ship should take into account guidance in the revised International Medical Guide for Ships, as appropriate.

Section B-VI/5

Guidance regarding training and certification for ship security officers

1 The training should be relevant to the provisions of the ISPS Code and the SOLAS Convention, as amended.*

2 On completion of training, a ship security officer should have adequate knowledge of the English language to correctly interpret and communicate messages relevant to ship or port facility security.

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

3 In circumstances of exceptional necessity, when a person holding a certificate of proficiency as a ship security officer is temporarily unavailable, the Administration may permit a seafarer having specific security duties and responsibilities and an understanding of the ship security plan to serve as ship security officer and to execute all duties and responsibilities of the ship security officer until the next port of call or for a period not exceeding 30 days, whichever is greater. The company should, as soon as possible, inform the competent authorities of the next port(s) of call of the arrangements in place.

Section B-VI/6

Guidance regarding mandatory minimum requirements for security-related training and instruction for all seafarers

Familiarization and security-awareness

1 Seafarers and shipboard personnel are not security experts and it is not the aim of the provisions of the Convention or this Code to convert them into security specialists.

2 Seafarers and shipboard personnel should receive adequate security-related training or instruction and familiarization training so as to acquire the required knowledge and understanding to perform their assigned duties and to collectively contribute to the enhancement of maritime security.

3 Seafarers without designated security duties should complete the security awareness training or instruction set out in section A-VI/6 at least one time in their career. There is no need for refreshment or revalidation of this training if the seafarer or the shipboard personnel concerned meet the security-related familiarization requirements of regulation VI/6 and participate in the drills and exercises required by the ISPS Code.

Seafarers with designated security duties

4 The expression “with designated security duties” in section A-VI/6 denotes those having specific security duties and responsibilities in accordance with the ship security plan.

5 Seafarers with designated security duties should complete the training as set out in section A-VI/6 at least one time in their career. There is no need for refreshment or revalidation of this training if the seafarer or the shipboard personnel concerned meet the security-related familiarization requirements of regulation VI/6 and participate in the drills and exercises required by the ISPS Code.

6 Those providing “security-related familiarization training” in accordance with section A-VI/6 should not be required to meet the requirements of either regulation I/6 or of section A-I/6.

7 In circumstances of exceptional necessity, when the shipboard security-related duties are required to be undertaken by a person qualified to perform designated security-related duties and such a person is temporarily unavailable, the Administration may permit a seafarer without designated security duties to perform such duties provided such a person has an understanding of the ship security plan, until the next port of call or for a period not exceeding 30 days, whichever is greater.

CHAPTER VII

Guidance regarding alternative certification

Section B-VII/1

Guidance regarding the issue of alternative certificates

(No provisions)

Section B-VII/2

Guidance regarding special integrated deck and engine training programmes

- 1 Each Party should ensure that any special integrated deck and engine training programme:
 - .1 is provided by means of an approved training programme;
 - .2 takes place ashore within maritime training institutions and/or on board approved training ships; and
 - .3 is documented in an approved training record book.

Section B-VII/3

Guidance regarding principles governing the issue of alternative certificates

(No provisions)

CHAPTER VIII

Guidance regarding watchkeeping

Section B-VIII/1

Guidance regarding fitness for duty

Prevention of fatigue

1 In observing the rest period requirements, “overriding operational conditions” should be construed to mean only essential shipboard work which cannot be delayed for safety or environmental reasons or which could not reasonably have been anticipated at the commencement of the voyage.

2 Although there is no universally accepted technical definition of fatigue, everyone involved in ship operations should be alert to the factors which can contribute to fatigue, including, but not limited to, those identified by the Organization*, and take them into account when making decisions on ship operations.

3 In applying regulation VIII/1, the following should be taken into account:

- .1 provisions made to prevent fatigue should ensure that excessive or unreasonable overall working hours are not undertaken. In particular, the minimum rest periods specified in section A-VIII/1 should not be interpreted as implying that all other hours may be devoted to watchkeeping or other duties;
- .2 the frequency and length of leave periods, and the granting of compensatory leave, are material factors in preventing fatigue from building up over a period of time; and
- .3 the provisions may be varied for ships on short sea voyages, provided special safety arrangements are put in place.

[3bis Exceptions provided for in section A-VIII/1, paragraph 9, should be construed to mean the exceptions laid down by the ILO Convention on Seafarers’ Hours of Work and the Manning of Ships, 1996 (No.180) or the Maritime Labour Convention, 2006, when it enters into force. The circumstances under which such exceptions are applied should be defined by the Parties.]

4 Based on information received as a result of investigating maritime casualties, Administrations should keep their provisions on prevention of fatigue under review.

* See the annex to IMO resolution A.772(18), paragraphs 2 to 4.4.1 and MSC/Circ.1014.

Prevention of drug and alcohol abuse

5 Drug and alcohol abuse directly affect the fitness and ability of a seafarer to perform watchkeeping duties or duties that involve designated safety, prevention of pollution and security duties. Seafarers found to be under the influence of drugs or alcohol should not be permitted to perform watchkeeping duties or duties that involve designated safety, prevention of pollution and security duties, until they are no longer impaired in their ability to perform those duties.

6 Administrations should ensure that adequate measures are taken to prevent alcohol and drugs from impairing the ability of watchkeeping personnel and those whose duties involve designated safety, prevention of pollution and security duties, and should establish screening programmes as necessary which:

- .1 identify drug and alcohol abuse;
- .2 respect the dignity, privacy, confidentiality and fundamental legal rights of the individuals concerned; and
- .3 take into account relevant international guidelines.

7 Companies should consider the implementation of a clearly written policy of drug and alcohol abuse prevention, including prohibition to consume alcohol within four hours prior to serving as a member of a watch either by inclusion in the company's quality-management system or by means of providing adequate information and education to the seafarers.

8 Those involved in establishing drug and alcohol abuse prevention programmes should take into account the guidance contained in the ILO publication *Drug and Alcohol Prevention Programmes in the Maritime Industry (A Manual for Planners)*^{*}, as may be amended.

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 1 – GUIDANCE ON CERTIFICATION

(No provisions)

PART 2 – GUIDANCE ON VOYAGE PLANNING

(No provisions)

* Annex III of this manual includes "Guiding Principles on Drug and Alcohol Testing procedures for Worldwide Application in the Maritime Industry". These guiding principles were adopted by the Joint ILO/WHO Committee on the Health of Seafarers (May 1993).

PART 3 – WATCHKEEPING PRINCIPLES IN GENERAL

(No provisions)

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 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.

Part 4-2 – Guidance on keeping an engineering watch

6 Particular guidance may be necessary for special types of propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly flammable materials or other special types of cargo. The chief engineer officer should provide this operational guidance as appropriate.

7 It is essential that officers in charge of the engineering watch appreciate that the efficient performance of engineering watchkeeping duties is necessary in the interest of the safety of life and property at sea and of preventing pollution of the marine environment.

8 The relieving officer, before assuming charge of the engineering watch, should:

- .1 be familiar with the location and use of the equipment provided for the safety of life in a hazardous or toxic environment;
- .2 ascertain that materials for the administration of emergency medical first aid are readily available, particularly those required for the treatment of burns and scalds; and
- .3 when in port, safely anchored or moored, be aware of:
 - .3.1 cargo activities, the status of maintenance and repair functions and all other operations affecting the watch, and
 - .3.2 the auxiliary machinery in use for passenger or crew accommodation services, cargo operations, operational water supplies and exhaust systems.

Part 4-3 – Guidance on keeping a radio watch

General

9 Among other things, the Radio Regulations require that each ship radio station is licensed, is under the ultimate authority of the master or other person responsible for the ship and is only operated under the control of adequately qualified personnel. The Radio Regulations also require that a distress alert shall only be sent on the authority of the master or other person responsible for the ship.

10 The master should bear in mind that all personnel assigned responsibility for sending a distress alert must be instructed with regard to, be knowledgeable of, and be able to operate properly all radio equipment on the ship, as required by regulation I/14, paragraph 1.5. This should be recorded in the deck or radio log-book.

Watchkeeping

11 In addition to the requirements concerning radio watchkeeping, the master of every seagoing ship should ensure that:

- .1 the ship's radio station is adequately manned for the purpose of exchanging general communications – in particular public correspondence, taking into account the constraints imposed by the duties of those authorized to operate it; and
- .2 the radio equipment provided on board and, where fitted, the reserve sources of energy are maintained in an efficient working condition.

12 Necessary instruction and information on use of radio equipment and procedures for distress and safety purposes should be given periodically to all relevant crew members by the person designated in the muster list to have primary responsibility for radiocommunications during distress incidents. This should be recorded in the radio log.

13 The master of every ship not subject to the SOLAS Convention should require that radio watchkeeping is adequately maintained as determined by the Administration, taking into account the Radio Regulations.

Operational

14 Prior to sailing, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure that:

- .1 all distress and safety radio equipment and the reserve source of energy are in an efficient working condition, and that this is recorded in the radio log;
- .2 all documents required by international agreement, notices to ship radio stations and additional documents required by the Administration are available and are corrected in accordance with the latest supplements, and that any discrepancy is reported to the master;
- .3 the radio clock is correctly set against standard time signals;
- .4 antennae are correctly positioned, undamaged and properly connected; and
- .5 to the extent practicable, routine weather and navigational warning messages for the area in which the ship will be navigating are updated together with those for other areas requested by the master, and that such messages are passed to the master.

15 On sailing and opening the station, the radio operator on watch should:

- .1 listen on the appropriate distress frequencies for any possible existing distress situation; and
- .2 send a traffic report (name, position and destination, etc.) to the local coast station and any other appropriate coast station from which general communications may be expected.

16 While the station is open, the radio operator on watch should:

- .1 check the radio clock against standard time signals at least once a day;

- .2 send a traffic report when entering and on leaving the service area of a coast station from which general communications might be expected; and
- .3 transmit reports to ship reporting systems in accordance with the instructions of the master.

17 While at sea, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure the proper functioning of:

- .1 the digital selective calling (DSC) distress and safety radio equipment by means of a test call at least once each week; and
- .2 the distress and safety radio equipment by means of a test at least once each day but without radiating any signal.

The results of these tests should be recorded in the radio log.

18 The radio operator designated to handle general communications should ensure that an effective watch is maintained on those frequencies on which communications are likely to be exchanged, having regard to the position of the ship in relation to those coast stations and to coast earth stations from which traffic may be expected. When exchanging traffic, radio operators should follow the relevant ITU recommendations.

19 When closing the station on arrival at a port, the radio operator on watch should advise the local coast station and other coast stations with which contact has been maintained of the ship's arrival and of the closing of the station.

20 When closing the radio station, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should:

- .1 ensure that transmitting antennae are earthed; and
- .2 check that the reserve sources of energy are sufficiently charged.

Distress alerts and procedures

21 The distress alert or distress call has absolute priority over all other transmissions. All stations which receive such signals are required by the Radio Regulations to immediately cease all transmissions capable of interfering with distress communications.

22 In the case of a distress affecting own ship, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

23 On receiving a distress alert:

- .1 the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents; and

- .2 the radio operator designated as having primary responsibility for radiocommunications during distress incidents should evaluate the situation and immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

Urgency messages

24 In cases of urgency affecting own ship, the radio operator designated as having responsibility for radiocommunications during distress incidents should immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

25 In cases of communications relating to medical advice, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should follow the procedures of the Radio Regulations and adhere to the conditions as published in the relevant international documentation (see paragraph 14.2) or as specified by the satellite service provider.

26 In cases of communications relating to medical transports, as defined in the Protocol additional to the Geneva Conventions of 12 August 1949, and relating to the protection of victims of international armed conflicts (Protocol I), the radio operator designated as having primary responsibility for radiocommunication during distress incidents should follow the procedures of the Radio Regulations.

27 On receiving an urgency message, the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents.

Safety messages

28 When a safety message is to be transmitted, the master and the radio operator on watch should follow the procedures of the Radio Regulations.

29 On receiving a safety message, the radio operator on watch should note its content and act in accordance with the master's instructions.

30 Bridge-to-bridge communications should be exchanged on VHF channel 13. Bridge-to-bridge communications are described as "Intership Navigation Safety Communications" in the Radio Regulations.

Radio records

31 Additional entries in the radio log should be made in accordance with paragraphs 10, 12, 14, 17 and 33.

32 Unauthorized transmissions and incidents of harmful interference should, if possible, be identified, recorded in the radio log and brought to the attention of the Administration in compliance with the Radio Regulations, together with an appropriate extract from the radio log.

Battery maintenance

33 Batteries providing a source of energy for any part of the radio installation, including those associated with uninterrupted power supplies, are the responsibility of the radio operator designated as having primary responsibility for radiocommunications during distress incidents and should be:

- .1 tested on-load and off-load daily and, where necessary, brought up to the fully charged condition;
- .2 tested once per week by means of a hydrometer where practicable, or, where a hydrometer cannot be used, by a suitable load test; and
- .3 checked once per month for the security of each battery and its connections and the condition of the batteries and their compartment or compartments.

The results of these tests should be recorded in the radio log.

PART 5 – GUIDANCE ON WATCHKEEPING IN PORT

(No provisions)

ANNEX 4**DRAFT CONFERENCE RESOLUTIONS****Resolution 1****Transitional provisions and early implementation**

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

[HAVING AGREED to include regulation I/15 on Transitional provisions, which allows for an interval of 5 years, or until the time of the next revalidation of certificate(s) of competency after the amendments have entered into force, whichever is later, before Parties will be required to issue, recognize and endorse certificates in accordance with the amendments adopted by the Conference,]

RECOGNIZING that, in order to achieve full compliance by [date of entry into force plus five years] [or] [the time of next revalidation of certificate(s) of competency after the amendments have entered into force, whichever is earlier], it is necessary for Parties to promptly begin taking appropriate measures to implement the STCW Convention and Code in their national training, certification and administration systems,

BEING CONCERNED that difficulties, which may arise in connection with the implementation of the requirements of the STCW Convention and Code, could undermine the objective of introducing the highest practicable standards of competence at the earliest possible time,

1. URGES each Party to keep the Maritime Safety Committee of the Organization informed of progress made in respect of the transitional provisions of regulation I/15 under its national system to implement the requirements of the amendments to the STCW Convention and Code, adopted by the Conference, as well as any difficulties encountered in this regard;
2. FURTHER URGES each Party to take appropriate steps for early implementation of the amendments to the STCW Convention and Code adopted by the Conference;
3. INVITES the Maritime Safety Committee of the International Maritime Organization, in order to promote the introduction of the highest practicable standards of competence as soon as possible, to monitor progress toward implementation of the STCW Convention and Code by all Parties, with the aim of encouraging an orderly transition and anticipating complications, which could otherwise undermine full and effective implementation.

Resolution 2

Verification of certificates of competency and endorsements

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, and to the Seafarers' Training, Certification and Watchkeeping Code, as amended,

RECOGNIZING the importance of adequate education and training for, and experience acquired by, all seafarers,

RECOGNIZING ALSO the need for all ships to be manned and operated by properly trained and certified seafarers,

RECOGNIZING FURTHER that the verification of certificates of competency and endorsements issued to seafarers is essential also from the point of view of preventing unlawful practices associated with the issuance of such certificates as well as to supporting port State control activities,

RECOMMENDS that Administrations take appropriate steps to:

- .1 establish electronic databases to assist in verifying the authenticity and validity of certificates of competency and endorsements they issue; and
- .2 respond appropriately and in a timely manner to any request from other Administrations for verification of the authenticity and validity of certificates of competency and endorsements.

Resolution 3

Standards of training and certification and ships' manning levels

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

RECOGNIZING the importance of adequate education and training for, and experience acquired by, all seafarers,

RECOGNIZING ALSO the need for all ships to be manned and operated by properly trained and certified seafarers,

NOTING that the STCW Convention and Code establish standards of training, certification and watchkeeping for seafarers,

1. REAFFIRMS that the STCW Convention and Code are instruments concerned with standards of training and certification and do not determine ships' manning levels;
2. REAFFIRMS ALSO that any decision relating to ships' manning levels is the responsibility of the Administrations and shipowners concerned taking into account the principles of safe manning* adopted by the International Maritime Organization.

* Refers to resolution A.890(21), as amended on Principles of safe manning, adopted by the Assembly of the International Maritime Organization on 25 November 1999.

Resolution 4

Promotion of technical knowledge, skills and professionalism of seafarers

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

NOTING with concern the reported and anticipated shortage of qualified officers to effectively man and operate ships engaged in international trade,

APPRECIATING that the overall effectiveness of selection, training and certification processes can only be evaluated through the skills, abilities and competence exhibited by seafarers during the course of their service on board ship,

RECOMMENDS that Administrations make arrangements to ensure that shipping companies:

- .1 establish criteria and processes for the selection of seafarers exhibiting the highest practicable standards of technical knowledge, skills and professionalism;
- .2 monitor the standards exhibited by ships' personnel in the performance of their duties;
- .3 encourage all officers serving on their ships to participate actively in the training of junior personnel;
- .4 monitor carefully and review frequently the progress made by junior personnel in the acquisition of knowledge and skills during their service on board ship;
- .5 provide refresher and updating training at suitable intervals, as may be required;
and
- .6 take all appropriate measures to instil pride in the maritime profession and encourage the creation of a safety culture and environmental conscience among all those who serve on their ships.

Resolution 5

Development of guidelines to implement international standards of medical fitness for seafarers

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

RECOGNIZING the importance of the overall medical fitness of masters and ships' crews to the safety of life and property at sea and the protection of the marine environment,

TAKING COGNIZANCE OF the international standards of medical fitness for seafarers included in the STCW Convention and Code and the Maritime Labour Convention, 2006,

INVITES the International Maritime Organization, in co-operation with the International Labour Organization and the World Health Organization, to develop guidelines to implement the aforementioned standards.

Resolution 6

Revision of model courses published by the International Maritime Organization

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

RECOGNIZING the significant contribution made to seafarers' training and certification through model courses, validated and published by the International Maritime Organization (IMO), providing core curricula based on the minimum requirements of the STCW Convention and Code,

APPRECIATING that the aforementioned model courses have assisted many training institutions to improve the quality of the training they provide and have been used to improve procedures for assessing competency,

DESIRING to achieve greater uniformity in the application of the training and assessment provisions of the STCW Convention and Code,

INVITES:

- .1 IMO to take steps to revise and update those model courses, which provide guidance on the implementation of the training and assessment provisions of the STCW Convention and Code; and
- .2 Governments and international organizations to provide funding for, and otherwise assist in, the revision and updating of such model courses.

Resolution 7

Promotion of technical co-operation

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

RECOGNIZING the importance of adequate education and training for, and experience acquired by, all seafarers,

RECOGNIZING FURTHER that, in some cases, there may be limited facilities for providing specialized training programmes and obtaining the required experience, particularly in developing countries,

BELIEVING that the promotion of technical co-operation will assist countries lacking adequate expertise or facilities in providing proper training and experience to implement the STCW Convention and Code,

1. STRONGLY URGES Parties to provide, or arrange to provide, in co-operation with the International Maritime Organization (IMO), assistance to those States, which have difficulty in meeting the revised requirements of the STCW Convention and Code and which request such assistance;
2. INVITES IMO to intensify its endeavours to provide States with the assistance they may require and to make adequate provision for that purpose within its technical co-operation programme.

Resolution 8

Measures to ensure the competency of masters and officers on ships operating in polar waters

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

NOTING that, as a result of the increase in maritime traffic in polar waters, several accidents have occurred there in recent years,

NOTING FURTHER the remoteness and the singular hydrographic, oceanographic, meteorological and glaciological characteristics of polar waters, to the extent that search and rescue, care and evacuation of persons and addressing the consequences of pollution entail considerable operational and logistical problems,

RECOGNIZING that the operation of ships sailing in polar waters calls for specific education, training, experience and related qualifications for masters and officers on board such ships,

RECOGNIZING ALSO the efforts made by governments to train masters and officers through courses dedicated to this particular class of navigation,

RECOGNIZING FURTHER both the *Guidelines for ships operating in polar waters*^{*} and the need for mandatory training requirements when the Polar Code under development by the International Maritime Organization is adopted,

RECOMMENDS that governments adopt measures conducive to ensuring that masters and officers of ships, which operate in polar waters, have appropriate training and experience, so that they are able to:

- .1 plan voyages to polar waters, taking into account glaciological, hydrographic, oceanographic and meteorological factors;
- .2 navigate safely in polar waters, in particular in restricted ice-covered areas under adverse conditions of wind and visibility; and
- .3 supervise and ensure compliance with the requirements deriving from intergovernmental agreements and with those relating to safety of life at sea and protection of the marine environment.

* Refer to resolution A.1024(26) – Guidelines for ships operating in polar waters, adopted by the Assembly of the International Maritime Organization on 2 December 2009.

Resolution 9

Attracting new entrants to, and retaining seafarers in, the maritime profession

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

BEING AWARE that more than 90% of world trade is carried by sea and that the shipping industry operates safely, securely, efficiently and in an environmentally-sound manner,

RECOGNIZING the vital service seafarers provide to shipping, an industry that contributes significantly to global and sustainable development and prosperity,

RECOGNIZING ALSO the need for today's increasingly sophisticated ships to be entrusted to seafarers who are competent in all respects to operate them in a safe, secure, efficient and environmentally-sound manner,

RECOGNIZING FURTHER that any discriminative legislation adopted and practices enacted have the potential to discourage young people from joining the profession and serving seafarers from remaining in it,

NOTING with concern the reported and anticipated shortage of qualified officers to effectively man and operate ships,

NOTING ALSO with appreciation the "Go to Sea!" campaign launched, in November 2008, by the Secretary-General of the International Maritime Organization, in co-operation with the International Labour Organization, BIMCO, International Chamber of Shipping, International Shipping Federation, INTERCARGO, INTERTANKO and the International Transport Workers' Federation,

APPRECIATING the overall efforts of the shipping industry to promote among young persons a career at sea,

RECOMMENDS that Administrations, shipping companies, shipowner, ship manager and seafarer organizations and any other entities concerned do their utmost to promote among young persons a career at sea and to retain existing seafarers within the industry by:

- .1 engendering a more favourable public perception, in particular among young people, of the maritime industry;
- .2 promoting a greater awareness and knowledge among young people of the opportunities offered by a career at sea;

- .3 improving the quality of life at sea by bringing it more closely in line with the career alternatives available ashore and by enhancing the facilities provided on board ships, including accessing the Internet;
- .4 encouraging all officers serving on their ships to participate actively in the training and mentoring of junior personnel during their service on board ship;
- .5 encouraging the provision of adequate accommodation for trainees on new buildings; and
- .6 taking all appropriate measures to instil pride in the maritime profession and encourage the creation of a safety culture and environmental conscience among all those who serve on their ships.

Resolution 10

Accommodation for trainees

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

NOTING with concern the reported and anticipated shortage of qualified officers to effectively man and operate ships engaged in international trade,

RECOGNIZING the need for today's increasingly sophisticated ships to be entrusted to seafarers who are competent in all respects to operate them in a safe, secure, efficient and environmentally-sound manner,

RECOGNIZING ALSO that minimum mandatory seagoing service forms part of the requirements prescribed in the STCW Convention and Code for operational level and support level certification,

RECOGNIZING FURTHER that the lack of adequate accommodation for trainees on board ships constitutes a significant impediment to properly training them and subsequently retaining them at sea, thus adding to the aforementioned shortage,

URGES shipowners, ship managers and shipping companies to provide suitable accommodation for trainees on board their ships both existing and new.

Resolution 11

Promotion of the participation of women in the maritime industry

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended,

NOTING the Long- and Medium-Term Plans for the Integration of Women in the Maritime Sector developed by the International Maritime Organization,

EXPRESSING SUPPORT for the latter's aims to promote the training of women in the maritime sector,

CONSIDERING HIGHLY DESIRABLE that both men and women have equal access opportunities to maritime training and to employment on board ship,

INVITES Governments:

- .1 to give special consideration to securing equal access by men and women in all sectors of the maritime industry; and
- .2 to highlight the role of women in the seafaring profession and to promote their greater participation in maritime training and at all levels in the maritime industry.

Resolution 12

Future amendments and review of the STCW Convention and Code

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

NOTING that rapidly evolving technology and training methodologies require a consistent approach towards reviewing, amending and updating the STCW Convention and Code,

NOTING FURTHER, however, that frequent amendments to the STCW Convention and Code may be problematic to Maritime Administrations, shipowners, maritime training and education institutions and/or seafarers and should, therefore, be avoided,

1. RECOMMENDS that significant and extensive amendments to the STCW Convention and Code should preferably be developed and adopted on a five-yearly cycle basis;
2. RECOMMENDS FURTHER that a comprehensive review of the STCW Convention and Code should be carried out every ten years to address any inconsistencies identified in the interim; and to ensure that they are up-to-date with emerging technologies.

Resolution 13

Contribution of the International Labour Organization

THE 2010 MANILA CONFERENCE,

HAVING ADOPTED amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 and to the Seafarers' Training, Certification and Watchkeeping Code, as amended (STCW Convention and Code),

RECOGNIZING the role, competence and expertise of the International Labour Organization (ILO) on matters relating to the occupational safety and health of seafarers,

RECOGNIZING ALSO the significant benefit to the achievement of the objective of the International Maritime Organization and the shipping industry from the Maritime Labour Convention, 2006 (MLC 2006), once in force and implemented,

1. EXPRESSES its appreciation for the contribution made by ILO during the development of the aforementioned amendments to the STCW Convention and Code; and
2. STRONGLY RECOMMENDS to Governments, which have not yet done so, to promptly ratify the MLC 2006 to enable its expeditious entry into force and, thereafter, to ensure its wide and effective implementation.

ANNEX 5

DRAFT ASSEMBLY RESOLUTION A.[...] (27)

PRINCIPLES OF MINIMUM SAFE MANNING

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO Article 28(a) of that Convention which requires the Maritime Safety Committee to consider, *inter alia*, the manning of seagoing ships from a safety standpoint,

NOTING that safe manning is a function of the number of qualified and experienced seafarers necessary for the safety and security of the ship, crew, passengers, cargo and property and for the protection of the marine environment,

RECOGNIZING the importance of the requirements of the pertinent IMO instruments as well as those adopted by ILO, ITU and WHO relevant to maritime safety and protection of the marine environment,

MINDFUL of the provisions of SOLAS regulation V/14, as amended, with respect to the issue of an appropriate safe manning document or equivalent as evidence of minimum safe manning,

ALSO MINDFUL of the provisions of SOLAS chapter XI-2 and the International Ship and Port Facility Security (ISPS) Code relating to the security of ships and port facilities,

BEING AWARE that the ability of seafarers to maintain observance of these requirements is dependent upon their continued efficiency through conditions relating to training, hours of work and rest, occupational safety, health and hygiene and the proper provision of food,

BELIEVING that international acceptance of broad principles as a framework for administrations to determine the safe manning of ships would materially enhance maritime safety, security and protection of the marine environment,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its [eighty-eighth] session,

1. ADOPTS the Principles of minimum safe manning, the Guidelines for the application of principles of safe manning and the Guidance on contents and model form of minimum safe manning document, set out respectively in Annexes 1, 2, 3, 4 and 5 to the present resolution;
2. RECOMMENDS that Governments, in establishing the minimum safe manning for ships flying their countries' flag, observe the Principles set out in Annex 1 and the procedures as set out in Annex 5 and take into account the Guidelines set out in Annexes 2 and 3;

3. URGES Governments to ensure that minimum safe manning documents contain, as a minimum, the information set out in Annex 4;
4. URGES FURTHER Governments, when exercising port State control functions under international conventions in force with respect to foreign ships visiting their ports, to regard compliance with the minimum safe manning documents as evidence that such ships are safely manned;
5. REQUESTS the Maritime Safety Committee to keep this resolution under review;
6. REVOKES resolutions A.890(21) and A.955(23).

* * *

ANNEX 1

GUIDELINES FOR THE APPLICATION OF PRINCIPLES OF MINIMUM SAFE MANNING

1 INTRODUCTION

1.1 These Guidelines should be used in applying the principles of minimum safe manning set out in section 3 to ensure the safe operation of ships to which article III of the 1978 STCW Convention, as amended, applies, and the security of ships to which chapter XI-2 of the 1974 SOLAS Convention, as amended, applies, and for the protection of the marine environment.

1.2 The Administration may retain or adopt arrangements which differ from the provisions herein recommended and which are especially adapted to technical developments and to special types of ships and trades. However, at all times the Administration should satisfy itself that the detailed manning arrangements ensure a degree of safety at least equivalent to that established by these Guidelines.

2 OBJECTIVES

2.1 The objectives of these Guidelines are to ensure that a ship is sufficiently, effectively and efficiently manned to provide safety and security of the ship, safe navigation and operations at sea, safe operations in port, prevention of human injury or loss of life, the avoidance of damage to the marine environment and to property, and to ensure the welfare and health of seafarers through the avoidance of fatigue. These objectives can be achieved through the following:

- .1 adoption of a goal-based approach;
- .2 standard procedures for effective implementation; and
- .3 effective enforcement.

3 PRINCIPLES OF MINIMUM SAFE MANNING

3.1 The following principles should be observed in determining the minimum safe manning of a ship:

- .1 the capability to:
 - .1.1 maintain safe navigational, port, engineering and radio watches in accordance with regulation VIII/2 of the 1978 STCW Convention, as amended, and also maintain general surveillance of the ship;
 - .1.2 moor and unmoor the ship safely;
 - .1.3 manage the safety functions of the ship when employed in a stationary or near-stationary mode at sea;

- .1.4 perform operations, as appropriate, for the prevention of damage to the marine environment;
- .1.5 maintain the safety arrangements and the cleanliness of all accessible spaces to minimize the risk of fire;
- .1.6 provide for medical care on board ship;
- .1.7 ensure safe carriage of cargo during transit;
- .1.8 inspect and maintain, as appropriate, the structural integrity of the ship; and
- .1.9 operate in accordance with the approved Ship's Security Plan; and
- .2 the ability to:
 - .2.1 operate all watertight closing arrangements and maintain them in effective condition, and also deploy a competent damage control party;
 - .2.2 operate all onboard fire-fighting and emergency equipment and life-saving appliances, carry out such maintenance of this equipment as is required to be done at sea, and muster and disembark all persons on board; and
 - .2.3 operate the main propulsion and auxiliary machinery including pollution prevention equipment and maintain them in a safe condition to enable the ship to overcome the foreseeable perils of the voyage.
- 3.2 The following onboard functions, when applicable, should also be taken into account:
 - .1 ongoing training requirements for all personnel, including the operation and use of fire-fighting and emergency equipment, life-saving appliances and watertight closing arrangements;
 - .2 specialized training requirements for particular types of ships and in instances where crew members are engaged in shipboard tasks that cross departmental boundaries;
 - .3 provision of proper food and drinking water;
 - .4 need to undertake emergency duties and responsibilities; and
 - .5 need to provide training opportunities for entrant seafarers to allow them to gain the training and experience needed.

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ANNEX 2

GUIDELINES FOR DETERMINATION OF MINIMUM SAFE MANNING

1 DETERMINATION OF MINIMUM SAFE MANNING

1.1 The minimum safe manning of a ship should be established taking into account all relevant factors, including the following:

- .1 size and type of ship;
- .2 number, size and type of main propulsion units and auxiliaries;
- .3 level of ship automation;
- .4 construction and equipment of the ship;
- .5 method of maintenance used;
- .6 cargo to be carried;
- .7 frequency of port calls, length and nature of voyages to be undertaken;
- .8 trading area(s), waters and operations in which the ship is involved;
- .9 extent to which training activities are conducted on board;
- .10 degree of shoreside support provided to the ship by the company;
- .11 applicable work hour limits and/or rest requirements; and
- .12 the provisions of the approved Ship's Security Plan.

1.2 The determination of the minimum safe manning of a ship should be based on performance of the functions at the appropriate level(s) of responsibility, as specified in the STCW Code, which include the following:

- .1 navigation, comprising the tasks, duties and responsibilities required to:
 - .1 plan and conduct safe navigation;
 - .2 maintain a safe navigational watch in accordance with the requirements of the STCW Code;
 - .3 manoeuvre and handle the ship in all conditions; and
 - .4 moor and unmoor the ship safely;

- .2 cargo handling and stowage, comprising the tasks, duties and responsibilities required to:
 - .1 plan, monitor and ensure safe loading, stowage, securing, care during the voyage and unloading of cargo to be carried on the ship;
- .3 operation of the ship and care for persons on board, comprising the tasks, duties and responsibilities required to:
 - .1 maintain the safety and security of all persons on board and keep life-saving, fire-fighting and other safety systems in operational condition;
 - .2 operate and maintain all watertight closing arrangements;
 - .3 perform operations, as appropriate, to muster and disembark all persons on board;
 - .4 perform operations, as appropriate, to ensure protection of the marine environment;
 - .5 provide for medical care on board the ship; and
 - .6 undertake administrative tasks required for the safe operation and the security of the ship;
- .4 marine engineering, comprising the tasks, duties and responsibilities required to:
 - .1 operate and monitor the ship's main propulsion and auxiliary machinery and evaluate the performance of such machinery;
 - .2 maintain a safe engineering watch in accordance with the requirements of the STCW Code;
 - .3 manage and perform fuel and ballast operations; and
 - .4 maintain safety of the ship's engine equipment, systems and services;
- .5 electrical, electronic and control engineering, comprising the tasks, duties and responsibilities required to:
 - .1 operate the ship's electrical and electronic equipment; and
 - .2 maintain the safety of the ship's electrical and electronic systems;
- .6 radiocommunications, comprising the tasks, duties and responsibilities required to:
 - .1 transmit and receive information using the radio equipment of the ship;
 - .2 maintain a safe radio watch in accordance with the requirements of the ITU Radio Regulations and the 1974 SOLAS Convention, as amended; and
 - .3 provide radio services in emergencies; and

- .7 maintenance and repair, comprising the tasks, duties and responsibilities required to:
 - .1 carry out maintenance and repair work to the ship and its machinery, equipment and systems, as appropriate to the method of maintenance and repair used.

1.3 In addition to the factors and functions in paragraphs 1.1 and 1.2, the determination of the minimum safe manning should also take into account:

- .1 the management of the safety, security and protection of the environment functions of a ship at sea when not under way;
- .2 except in ships of limited size, the provision of qualified deck officers to ensure that it is not necessary for the master to keep regular watches by adopting a three-watch system;
- .3 except in ships of limited propulsion power or operating under provisions for unattended machinery spaces, the provision of qualified engineer officers to ensure that it is not necessary for the chief engineer to keep regular watches by adopting a three-watch system;
- .4 the maintenance of applicable occupational health and hygiene standards on board; and
- .5 the provision of proper food and drinking water for all persons on board, as required.

1.4 In determining the minimum safe manning of a ship, consideration should also be given to:

- .1 the number of qualified and other personnel required to meet peak workload situations and conditions, with due regard to the number of hours of shipboard duties and rest periods assigned to seafarers; and
- .2 the capability of the master and the ship's complement to coordinate the activities necessary for the safe operation and for the security of the ship and for the protection of the marine environment.

* * *

ANNEX 3

RESPONSIBILITIES IN THE APPLICATION OF PRINCIPLES OF MINIMUM SAFE MANNING

1 Responsibilities of companies

1.1 The Administration may require the company responsible for the operation of the ship to prepare and submit its proposal for the minimum safe manning of a ship in accordance with a form specified by the Administration.

1.2 In preparing a proposal for the minimum safe manning of a ship, the company should apply the principles, recommendations and guidelines contained in this resolution and should be required to:

- .1 make an assessment of the tasks, duties and responsibilities of the ship's complement required for its safe operation, for its security, for protection of the marine environment, and for dealing with emergency situations;
- .2 ensure that fitness for duty provisions and record of hours are implemented;
- .3 make an assessment of numbers and grades/capacities in the ship's complement required for its safe operation, for its security, for protection of the marine environment, and for dealing with emergency situations;
- .4 prepare and submit to the Administration a proposal for the minimum safe manning based upon the assessment of the numbers and grades/capacities in the ship's complement required for its safe operation, for its security and for protection of the marine environment, justifying the proposal by explaining how the proposed ship's complement will deal with emergency situations, including the evacuation of passengers, where necessary;
- .5 ensure that the minimum safe manning is adequate at all times and in all respects, including meeting peak workload situations, conditions and requirements, and is in accordance with the principles, recommendations and guidelines contained in this resolution; and
- .6 prepare and submit to the Administration a new proposal for the minimum safe manning of a ship in the case of changes in trading area(s), construction, machinery, equipment, operation and maintenance or management of the ship, which may affect the safe manning.

2 Approval by the Administration

2.1 A proposal for the minimum safe manning of a ship submitted by a company to the Administration should be evaluated by the Administration to ensure that:

- .1 the proposed ship's complement contains the number and grades/capacities of personnel to fulfil the tasks, duties and responsibilities required for the safe

operation of the ship, for its security, for protection of the marine environment and for dealing with emergency situations; and

- .2 the master, officers and other members of the ship's complement are not required to work more hours than is safe in relation to the performance of their duties and the safety of the ship and that the requirements for work and rest hours, in accordance with applicable national regulations, can be complied with.

2.2 In applying such principles, Administrations should take proper account of existing IMO, ILO, ITU and WHO instruments in force which deal with:

- .1 watchkeeping;
- .2 hours of work or rest;
- .3 safety management;
- .4 certification of seafarers;
- .5 training of seafarers;
- .6 occupational safety, health and hygiene;
- .7 crew accommodation and food;
- .8 security;
- .9 radiocommunications.

2.3 The Administration should require a company to amend a proposal for the minimum safe manning of a ship if, after evaluation of the original proposal submitted by the company, the Administration is unable to approve the proposed composition of the ship's complement.

2.4 The Administration should only approve a proposal for the minimum safe manning of a ship and issue accordingly a minimum safe manning document if it is fully satisfied that the proposed ship's complement is established in accordance with the principles, recommendations and guidelines contained in this resolution, and is adequate in all respects for the safe operation and the security of the ship and for the protection of the marine environment.

2.5 The Administration may withdraw the minimum safe manning document of a ship if the company fails to submit a new proposal for the ship's minimum safe manning when changes in trading area(s), construction, machinery, equipment or operation and maintenance of the ship have taken place which affect the minimum safe manning.

2.6 The Administration should review and may withdraw, as appropriate, the minimum safe manning document of a ship which persistently fails to be in compliance with rest hours requirements.

2.7 The Administration should consider the circumstances very carefully before allowing a minimum safe manning document to contain provisions for less than three qualified officers in charge of a navigational watch, while taking into account all the principles for establishing safe manning.

* * *

ANNEX 4

**GUIDANCE ON CONTENTS AND MODEL FORM OF
MINIMUM SAFE MANNING DOCUMENT**

1 The following information should be included in the minimum safe manning document issued by the Administration specifying the minimum safe manning:

- .1 a clear statement of the ship's name, port of registry, distinctive number or letters, IMO number, gross tonnage, main propulsion power, type and trading area, whether or not the machinery space is unattended and company as defined in the ISM Code;
- .2 a table showing the number and grades/capacities of the personnel required to be carried, together with any special conditions or other remarks;
- .3 a formal statement by the Administration that, in accordance with the principles and guidelines set out in Annexes 1 and 2, the ship named in the document is considered to be safely manned if, whenever it proceeds to sea, it carries not less than the number and grades/capacities of personnel shown in the document, subject to any special conditions stated therein;
- .4 a statement as to any limitations on the validity of the document by reference to particulars of the individual ship and the nature of service upon which it is engaged; and
- .5 the date of issue and any expiry date of the document together with a signature for and the seal of the Administration.

2 It is recommended that the minimum safe manning document be drawn up in the form corresponding to the model given in the appendix to this Annex. If the language used is not English, the information given should include a translation into English.

APPENDIX

MODEL FORM OF MINIMUM SAFE MANNING DOCUMENT

MINIMUM SAFE MANNING DOCUMENT

(Official seal)

(State)

Issued under the provisions of regulation V/14.2.2 of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, as amended

under the authority of the Government of

.....
(name of the State)

by

.....
(Administration)

*Particulars of ship**

Name of ship
Distinctive number or letters
IMO number
Port of registry
Gross tonnage:
 National
 International Tonnage Convention, 1969
Main propulsion power (kW)
Type of ship

Periodically unattended machinery space yes/no

Operating Company
.....

* Alternatively the particulars of the ship may be placed horizontally.

Trading area**

The ship named in this document is considered to be safely manned if, when it proceeds to sea, it carries not less than the number and grades/capacities of personnel specified in the table(s) below.

Grade/capacity	Certificate (STCW regulation)	Number of persons

Special requirements or conditions, if any:

Issued at on the day of
(month and year)

Date of expiry (if any)

(Seal of the Administration)

.....
(Signature for and on behalf of the Administration)

* * *

** Where a trading area other than unlimited is shown, a clear description or map of the trading area should be included in the document.

ANNEX 5

FRAMEWORK FOR DETERMINING MINIMUM SAFE MANNING

Preamble

This framework has been developed to assist Administrations and companies in determining minimum safe manning.

Steps for determining minimum safe manning

1 Submission from the company

1.1 Submission of a proposal from the company for minimum safe manning defining the nature of the operation of the ship; ~~and~~

1.2 Submission needs to take into account the requirements of Annexes 2 and 3 in the context of the management of the safety, security and protection of the marine environment functions of a ship.

1.3 The process outlined below should enable companies to achieve greater depth and insight into the interdependencies and interactions of operational elements that influence the amounts of crew member workload and, ultimately, the proposed minimum safe manning level.

Operational functions

1.4 Beginning this process requires the breakdown of the operational elements into functions. Annex 2 provides guidance on the relevant functions that need to be considered, however, this list is not exclusive. Each function can then be broken down into a task list that includes the attributes listed below.

- .1 **Duration:** What is the time required to execute each task? Time in this case is measurement of total man hours versus the actual duration taken for task completion, since some tasks can be done in a shorter time by using multiple individuals.
- .2 **Frequency:** How often is the task performed? This can be categorized using some form of standard interval (i.e. hourly, daily, weekly, etc.).
- .3 **Competence:** What are the skills, training and qualifications needed to consistently perform the task properly?
- .4 **Importance:** What is the risk or consequence associated with improper performance?

Operational factors

1.5 Once a function is broken down into specific tasks and their attributes, it is then necessary to determine the specific personnel qualifications, operational policy and procedures, and infrastructure/technology necessary to perform each task. It is important to recognize that these

elements may increase or decrease manning levels depending on availability and appropriate procedures and of specific capability enabling technology/automation.

Task capability

1.6 The information generated in defining the operational factors and functions should be used to determine how many tasks that can be executed by an individual under the possible range of operational conditions. Critical considerations, while conducting this step, are human element limitations and relevant standards and regulations. These include sleep and circadian requirements, physical and mental workload associated with each task, and exposure limits to shipboard environmental conditions such as noise, temperature and toxins.

Workload assessments

1.7 Once steps relating to operational functions, operational factors and task capability have been conducted, the information is then used to determine whether workload will not exceed the minimum hours of rest and/or work as provided in relevant national and international regulations. Considerations, while performing this step, include work period lengths, work schedule designs and whether a single crew member can execute the tasks set in a specific work period or work period(s) per work day.

2 Evaluation by the Administration

2.1 The Administration should evaluate/approve the submission of the company against relevant national and international regulatory requirements and guidelines.

2.2 Having evaluated and approved the proposal the Administration should issue a minimum safe manning document including special requirements and conditions.

3 Maintenance of minimum safe manning document

A company should advise the Administration of any changes that would affect the minimum safe manning document, and in such circumstances prepare and submit a new proposal taking into account Annex 3.

4 Compliance monitoring

The Administration should periodically review the minimum safe manning arrangements.

ANNEX 6

**DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE
SAFETY OF LIFE AT SEA, 1974, AS AMENDED****CHAPTER V****SAFETY OF NAVIGATION****REGULATION 14****Ships' manning**

1 The existing paragraph 2 is replaced by the following new paragraph:

2 Every ship to which chapter I applies the Administration shall:

.1 establish appropriate minimum safe manning following a transparent procedure taking into account the relevant guidance adopted by the Organization^{*}; and

.2 issue an appropriate minimum safe manning document or equivalent as evidence of the minimum safe manning considered necessary to comply with the provisions of paragraph 1.

* Refer to the Principles of Minimum Safe Manning adopted by the Organization by resolution A.....(27).

ANNEX 7

**DRAFT BIENNIAL AGENDA AND POST-BIENNIAL AGENDA
OF THE SUB-COMMITTEE AND PROVISIONAL AGENDA FOR STW 42**

BIENNIAL AGENDA*

STANDARDS ON TRAINING AND WATCHKEEPING (STW)					
PLANNED OUTPUTS 2010-2011 (resolution A.1013(26))		Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year**
Number	Description				
5.1.1.9	Development of training standards for recovery systems	MSC	STW	DE	2 Sessions 2012
5.2.1.25	Revision of the Recommendations for entering enclosed spaces aboard ships	MSC	DSC	DSC FP	2010 2011
5.2.2.1	Comprehensive review of the STCW Convention and Code	MSC	STW		2010
5.2.2.3 12.1.2.3	Review of the principles for establishing the safe manning level of ships including mandatory requirements for determining safe manning (in co-operation with NAV)	MSC	STW	NAV	2010
5.2.2.4	Development of model procedures for executing shipboard emergency measures	MSC	STW		2011
5.2.2.5	Validation of model training courses	MSC	STW		Ongoing

* Items printed in bold letters have been selected for the provisional agenda for STW 42.

** The term “ongoing” means that an output is a permanent or continuous task.

STANDARDS ON TRAINING AND WATCHKEEPING (STW)					
PLANNED OUTPUTS 2010-2011 (resolution A.1013(26))		Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year**
Number	Description				
5.2.2.6	Training for seafarer safety representatives	MSC	STW		2010
5.2.2.7	Unlawful practices associated with certificates of competency	MSC	STW		Ongoing
5.2.6.1	Development of an e-navigation strategy implementation plan	MSC	NAV	COMSAR STW	2012
6.3.2.1	Measures to enhance maritime security	MSC	MSC	STW	2010
12.1.2.2	Casualty analysis	MSC	FSI	STW	Ongoing

POST-BIENNIAL AGENDA

STANDARDS ON TRAINING AND WATCHKEEPING (STW)								
ACCEPTED POST-BIENNIAL OUTPUTS				Parent organ(s)	Involved organ(s)	Associated Organ(s)	Timescale (sessions)	Remarks
Number	Reference to Strategic Directions	Reference to High-level Actions	Description					
STW 1	5.1	5.1.1	Safety provisions applicable to tenders operating from passenger ships (coordinated by DE)	MSC	DE		3	MSC 84/24, paragraph 22.66
STW 2	5.2	5.2.1	Clarification of the STCW-F Convention provisions and follow-up action to the associated Conference resolutions	MSC			2	STW 34/14, paragraph 11.8
STW 3	5.2	5.2.2	Review of the implementation of STCW chapter VII	MSC			2	MSC 72/23, paragraph 21.56; STW 35/19, section 14

DRAFT PROVISIONAL AGENDA FOR STW 42

- Opening of the session
- 1 Adoption of the agenda
 - 2 Decisions of other IMO bodies
 - 3 Validation of model training courses
 - 4 Unlawful practices associated with certificates of competency
 - 5 Casualty analysis
 - 6 Development of an e-navigation strategy implementation plan
 - 7 Revision of the Recommendations for entering enclosed spaces aboard ships
 - 8 Development of model procedures for executing shipboard emergency measures
 - 9 Development of training standards for recovery systems
 - 10 Biennial agenda, post-biennial agenda and provisional agenda for STW 43
 - 11 Election of Chairman and Vice-Chairman for 2012
 - 12 Any other business
 - 13 Report to the Maritime Safety Committee

ANNEX 8

**STATUS OF PLANNED OUTPUT OF THE HIGH-LEVEL ACTION PLAN OF THE ORGANIZATION AND PRIORITIES
FOR THE 2010-2011 BIENNIUM RELEVANT TO THE SUB-COMMITTEE**

Planned output number in the High-level Action Plan for 2010-2011	Description	Target completion year	Parent Organ(s)	Coordinating organ(s)	Associated organ(s)	Status of output for Year 1	Status of output for Year 2	References
5.1.1.9	Development of training standards for recovery systems	2012 (for STW)	MSC	STW	DE	Postponed		STW 41/16, section 13 To be undertaken next year subject to DE 53 finalizing the Performance Standards
5.2.1.25	Revision of the Recommendations for entering enclosed spaces aboard ships	2010 (for BLG) 2010 (for DSC) 2011 (for STW) 2010 (for FP) 2010 (for MSC)	MSC	DSC	STW FP BLG	Postponed		STW 41/16, section 15 DSC as the coordinating Sub-Committee has just commenced its work by establishing a correspondence group. The Sub-Committee will commence its work after DSC 15 considers the recommendation of the correspondence group. Accordingly, TCY extended to 2011
5.2.2.1	Comprehensive review of the STCW Convention and Code	2010 (for STW) 2010 (for MSC)	MSC	STW		Completed	Not applicable	STW 41/16, section 7

Planned output number in the High-level Action Plan for 2010-2011	Description	Target completion year	Parent Organ(s)	Coordinating organ(s)	Associated organ(s)	Status of output for Year 1	Status of output for Year 2	References
5.2.2.3 12.1.2.3	Review of the principles for establishing the safe manning level of ships including mandatory requirements for determining safe manning	2010 (STW) 2010 (for NAV) 2011 (MSC)	MSC	STW	NAV	Completed	Not applicable	STW 41/16, section 8
5.2.2.4	Development of model procedures for executing shipboard emergency measures	2011 (STW) 2011 (MSC)	MSC	STW		In progress		STW 41/16, section 12
5.2.2.5	Validation of model training courses	Continuous	MSC	STW		Ongoing		STW 41/16, section 3
5.2.2.6	Training for seafarer safety representatives	2010 (STW) 2010 (MSC)	MSC		STW JWGHE	In progress		STW 41/16, section 5 Work transferred to MSC/MEPC Joint Working Group on Human Element (JWGHE)
5.2.2.7	Unlawful practices associated with certificates of competency	Continuous	MSC	STW		Ongoing		STW 41/16, section 4

Planned output number in the High-level Action Plan for 2010-2011	Description	Target completion year	Parent Organ(s)	Coordinating organ(s)	Associated organ(s)	Status of output for Year 1	Status of output for Year 2	References
5.2.6.1	Development of an e-navigation strategy implementation plan	2012 (NAV) 2012 (COMSAR) 2012 (STW)	MSC	NAV	COMSAR STW	In progress Postponed		STW 41/16, section 10 The Sub-Committee will commence its work after receiving inputs from the correspondence group established by NAV 55 to progress the matter intersessionally
6.3.2.1	Measures to enhance maritime security	2010 (STW)	MSC	STW		Completed	Not applicable	STW 41/16, section 9
12.1.2.2	Casualty analysis	Continuous	MSC	FSI	All Sub-Committees	Ongoing		STW 41/16, section 6

Notes:

- a When individual outputs contain multiple deliverables, the format should report on each individual deliverable.
- b The target completion date should be specified as a year, or indicate that the item is continuous. This should not indicate a number of sessions.
- c The entries under the “Status of output” columns are to be classified as follows:
 - “completed” signifies that the outputs in question have been duly finalized;
 - “in progress” signifies that work on the related outputs has been progressed, often with interim outputs (for example, draft amendments or guidelines) which are expected to be approved later in the same biennium;
 - “ongoing” signifies that the outputs relate to work of the respective IMO organs that is a permanent or continuous task; and
 - “postponed” signifies that the respective IMO organ has decided to defer the production of relevant outputs to another time (for example, until the receipt of corresponding submissions).
- d If the output consists of the adoption/approval of an instrument (e.g., resolution, circular, etc.), that instrument should be clearly referenced in this column.