A Rough Guide to interpreting the Principles of Safe Manning
Captain Michael Lloyd
Commodore David Squire

On 30 November 2011, the IMO adopted Resolution A.1047(27) - **Principles of Minimum Safe Manning** - which revokes Resolutions A.890(21) and A.955(23).

Paragraph 1.4 of Annex 2 - **Guidelines for Determination of Minimum Safe Manning** – states that in determining the minimum safe manning of a ship, consideration should also be given to 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.

A few definitions of peak work load conditions could be:

- for cargo ships: the ability to moor safely in adverse weather conditions where springs and ropes must be put out together and possibly tugs lines tended, all supervised by a responsible officer;

- for cruise ships: the ability to evacuate the ship safely in poor weather conditions at night without assistance from the shore facilities in the time specified by the IMO;

- for smaller vessels: the ability to enter port, work cargo and sail the same day and comply with the requirements for hours of work and hours of rest;

- for engineering staff: the ability to man the machinery control room or machinery monitoring station when navigating in restricted waters and/or berthing/unberthing;

- for maintenance: the ability to undertake essential ship/system/machinery maintenance in harbour during cargo operations or bunkering operations whilst attending to inspectors and port or company officials.

The **Guidelines for Determination of Minimum Safe Manning** are only viable if they are strictly complied with. To date, there is no mathematical formula for assessing the manpower requirements of a ship taking into account these Guidelines - while these are very sensible guidelines, they are nevertheless open to individual interpretation, and we can only offer our own thoughts on how to apply them.

This we have done by way of this Template titled **A Rough Guide to interpreting the Principles of Safe Manning**. This is a ‘live’ document which will be updated on the receipt of any feedback from the various stakeholders.

To this end, feedback is welcome and should be sent to editor@he-alert.org
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<tr>
<th>OPERATIONAL FUNCTION</th>
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<tr>
<td>NAVIGATION</td>
<td>Plan and conduct safe navigation</td>
<td></td>
<td>STCW Code</td>
<td>Passage planning</td>
<td>Duration: Constant Frequency: Depends on trading pattern Competence: STCW Importance: High Additional to watchkeeping duties</td>
</tr>
<tr>
<td>Maintain a safe navigational watch in accordance with the requirements of the STCW Code</td>
<td>Ocean navigation Coastal navigation Port approaches Pilottage Equipment functionality Weather Visibility Manoeuvrability Sea &amp; air draft Communications</td>
<td>STCW Code</td>
<td>Principles to be observed in keeping a safe navigational watch Bridge resource management principles Situational awareness Communications</td>
<td>Duration: Variable depending on trading pattern Frequency: Frequent Competence: STCW Importance: High Decide on watchkeeping pattern: 4/8, 6/6 or other Allow contingency to increase for weather &amp; traffic density</td>
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<tr>
<td>Maneuver and the ship in all conditions</td>
<td>Weather Port approaches River/channel navigation ice areas Ship type &amp; manoeuvrability Visibility Traffic density Ship handling Communications Pilottage needs Duration of passage Availability of tugs</td>
<td>STCW Code</td>
<td>Ship handling in all weather conditions Knowledge of ship’s manoeuvrability Knowledge of river and mud navigation Knowledge of ice navigation</td>
<td>Duration: Short Frequency: Frequent Competence: STCW, BRM, ice experience, river experience Importance: Critical Normal watchkeeping pattern &amp; lookout requirements Increasing to high for poor visibility, coastal, port approaches &amp; pilottage Highest workload for master and bridge officers</td>
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<tr>
<td>Moor and unmoor the ship safely</td>
<td>Anchoring Mooring to buoy(s) Alongside berth Ship to ship Berthing in a tinway RD-RO berth Weather Equipment availability &amp; functionality Tug availability Mooring line type and conditions Pilot requirements Ship size Manoeuvrability Availability of linesmen ashore</td>
<td>STCW Code ISM Code Codes of Safe Working practice</td>
<td>Ability to moor the ship in all weathers</td>
<td>Duration: Short Frequency: Variable depending on trading pattern Competence: STCW Importance: Critical Depends on availability of sufficiently trained crew to moor the ship safely in all weathers &amp; under adequate supervision and of sufficient linesmen ashore Peak workload condition: Ability to moor safely in adverse weather conditions where springs and ropes must be put out together and possibly tugs lines tended, all supervised by a responsible officer</td>
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<tr>
<td>CARGO HANDLING AND STOWAGE</td>
<td>Plan, monitor and ensure safe loading of cargo</td>
<td></td>
<td>STCW Code IMDG Code CSS Code TDC Code IMSBC Code BC Code International Grain Code MARPOL Load Line Convention BWM Convention</td>
<td>Knowledge of: - ship loading facilities - stability - cargo and stowage requirement - Charter Party terms - Bills of Lading</td>
<td>Duration: Planning done at sea; constant in port Frequency: Dictated by trading &amp; port working patterns Competence: STCW Importance: High Heavy to critical Security restrictions may impose on ship's work pattern Preparation for sea critical Peak workload condition: In for smaller vessels, the ability to enter port, work cargo and sail the same day and comply with the requirements for hours of work and hours of rest</td>
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</table>
| Plan, monitor and ensure care of cargo during the voyage | Type of cargo  
Weather  
Stowage of cargo  
Duration of voyage  
Ventilation  
Charter Party  
Extra watch keeping requirements | STCW Code  
IMDG Code  
CSS Code  
TDC Code  
IMSB Code  
BC Code  
International Grain Code  
MARPOL  
Load Line Convention | General cargo knowledge  
Specialist cargo knowledge dependent on type | Duration: Continuous  
Frequency: Cargo dependent  
Competence: STCW  
Importance: High | Normal to critical depending on nature of cargo  
Possible additional: watch keeping requirements for deck and engine departments (officers & ratings) |
| Plan, monitor and ensure unloading of cargo | Ship preparation  
Cargo type  
Division of responsibilities between ship & ship  
Shore equipment availability  
Onboard equipment availability  
Ship stability  
Ballasting requirements  
Weather  
Berth suitability  
Time restrictions  
Charter Party  
Draft  
Discharge rates | STCW Code  
IMDG Code  
CSS Code  
TDC Code  
IMSB Code  
BC Code  
International Grain Code  
MARPOL  
BWM Convention  
Load Line Convention | Knowledge of ship and port discharge facilities  
Inspection and survey of holds/tanks | Duration: Continuous during discharge  
Frequency: Dictated by trading & port working patterns  
Competence: STCW  
Importance: High | Heavy to critical  
Security restrictions may impose on ships work pattern  
Heaviest period on arrival and in preparation for departure |
| OPERATION OF THE SHIP AND CARE FOR PERSONS ON BOARD | In port & at sea  
Training levels of crew  
Safety Management System  
Permits to work  
Security level  
Availability of ship & port facilities  
Enter into, & rescue from enclosed spaces | SOLAS  
ISA Code  
ISPS Code  
SUA Conventions and Protocols  
ILO/IMO Code of practice on security in ports  
Djibouti Code of Conduct | Knowledge of Port security facilities  
Ship Security Officer Certification  
Shipboard knowledge | Duration: Area dependant; constant in port  
Frequency: Dictated by trading patterns & port visits  
Competence: Ship Security Officer certification, Crew trained  
Importance: Critical | High to critical, depending on security level  
Can be manpower intensive  
Extra watchkeeping in port and in piracy areas at sea |
| Keep life-saving, fire-fighting and other safety systems in operational condition | Training and drills  
Equipment maintenance  
Equipment certification  
Company SMS requirements  
Manufacturer’s maintenance instructions  
Station Bill  
Fitness of crew for assigned tasks | SOLAS  
STCW Code  
LSA Code | Fire certification to appropriate level  
Knowledge of the operation and control of all fire fighting equipment on board  
Specialist knowledge of BA sets | Duration: Depending on fit and in accordance with maintenance requirements  
Frequency: Depending on fit and in accordance with maintenance requirements  
Competence: STCW  
Importance: Critical | Division of labour between normal ship work and safety essential  
Essential to establish priorities (few ships can manage both) |
| Operate and maintain all watertight closing arrangements | Ships SMS requirements  
Maintenance instructions  
Weather conditions  
Safety of personnel | STCW Code  
SOLAS  
2008 B Code  
IACS UI SC156 | Knowledge of the W/T door regulations, the position of W/T doors and their operation | Duration: Periodic  
Frequency: Testing, entering/leaving harbour & during heavy sea states  
Competence: STCW  
Importance: High | Not manpower intensive  
Power operated doors  
Care required over safety |
| Perform operations, as appropriate, to muster and disembark all persons on board | Training & drills for crew members  
Knowledge of special requirements for aged or infirm on board  
Weather conditions  
Number of persons to muster & disembark  
Injured persons  
Time to disembark  
Communications | STCW Code  
SOLAS  
LSA Code | Boatswain  
Crowd management  
Leadership  
Communication  
Seamanship | Duration: As prescribed in SOLAS  
Frequency: Training & drills as prescribed in SOLAS  
Competence: STCW  
Importance: Critical | Manpower intensive, particularly on passenger-carrying ships  
Peak workload condition: The ability to evacuate a cruise ship safely in poor weather conditions at night without assistance from shore facilities in the time specified by the IMO |
| Perform operations, as appropriate, to ensure protection of the marine environment | Port & sea preparation  
Availability of anti-pollution equipment  
Pollution risk areas on board  
Co-ordination between departments  
Company SMS  
Communications | SOLAS  
MARPOL  
STCW Code | Pollution prevention & control | Duration: As required  
Frequency: As required  
Competence: STCW  
Importance: Critical | Manpower intensive during exercises and actual clean-up operations |
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<td>Provide for medical care on board the ship</td>
<td>At sea In port Availability of onboard facilities Helicopter availability First Aid stations Hospital preparation Stretcher parties Equipment availability Access to medical records</td>
<td>STCW Code International Medical Guide for Ships ILO Guidelines on the medical examinations of seafarers</td>
<td>Certification appropriate to rank</td>
<td>Duration: As required Frequency: As Required Competence: At least to STCW standards, other than in ships required to carry a medical practitioner Importance: Critical</td>
<td>Not manpower intensive, except during emergencies</td>
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<tr>
<td>Undertake administrative tasks required for the safe operation and the security of the ship</td>
<td>Certification upkeep Conducting surveys Accompanying shore surveys Updating risk assessments Monitoring hours of work Upkeep of maintenance records Upkeep of regulations Dealing with Port Officials Catering administration Stores administration Personnel administration Inspections Updating navigation information Updating port information Checking navigation equipment Checking safety equipment Inventories Safety meetings Administration meetings Cargo meetings Medical administration Portage bill Cash advances Payments Budgeting Security Training</td>
<td>SOLAS ISM Code PSC</td>
<td>Leadership Accountancy Personnel skills Catering Skills Health and Safety Patience Diplomacy</td>
<td>Duration: Constant Frequency: Constant Competence: Variable increasing with experience Importance: Critical</td>
<td>Normally to be undertaken outside of watchkeeping duties Consider Administration tasks for everyone from master and chief engineer downwards</td>
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<td>MARINE ENGINEERING</td>
<td>Complexity of machinery spaces UMS conditions Technical complexity of machinery, control &amp; monitoring systems Redundancy of essential machinery Maintenance regime employed in the upkeep of machinery &amp; control systems Level &amp; availability of technical shore support Operational checks on machinery &amp; systems</td>
<td>STCW Code</td>
<td>Operation, surveillance, performance assessment &amp; maintaining safety of propulsion plant and auxiliary machinery Preparation, operation, fault detection &amp; necessary measures to prevent damage for the following machinery items &amp; control systems: - main engine &amp; associated auxiliaries - steam boiler &amp; associated auxiliaries &amp; steam systems - auxiliary prime movers &amp; associated systems - other auxiliaries, including refrigeration, air conditioning &amp; ventilation systems Principles to be observed in keeping an engineering watch Engine-room resource management principles Communications</td>
<td>Duration: Constant Frequency: Constant Competence: STCW Importance: High</td>
<td>Dependent on UMS conditions and maintenance Peak workload conditions: The ability to man the machinery control room or machinery monitoring station when navigating in restricted waters and/or berthing/unberthing</td>
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<td>Maintain a safe engineering watch in accordance with the requirements of the STCW Code</td>
<td>Complexity of machinery spaces UMS conditions Technical complexity of machinery, control &amp; monitoring systems</td>
<td>STCW Code</td>
<td></td>
<td></td>
<td>Dependent on UMS conditions Decide on watchkeeping pattern: 4/8, 6/6 or other Allow contingency to increase for lengthy transits during poor visibility, coastal, port approaches &amp; pilotage</td>
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<tr>
<td>ELECTRICAL, ELECTRONIC AND CONTROL ENGINEERING</td>
<td>All electrical, electronic &amp; control equipment, including navigation aids &amp; internal &amp; external communication systems, Type/complexity of ship, Technical complexity of systems, Redundancy of essential systems, Operational checks on electrical/ electronic systems.</td>
<td>STCW.</td>
<td>Principles to be observed in keeping an engineering watch (where appropriate): Engine-room resource management principles, Communications.</td>
<td>Duration: Constant, Frequency: Constant, Competence: STCW, Importance: High to critical.</td>
<td>Manning requirements greater on passenger vessels.</td>
</tr>
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<td>Maintain the safety of the ship’s electrical and electronic systems</td>
<td>Maintenance regime employed in the upkeep of electrical, electronic &amp; control engineering systems &amp; internal &amp; external communication systems, Type/complexity of ship, Level &amp; availability of technical shore support, Company &amp; survey requirements, Detection &amp; rectification of malfunctions, Different types of machinery installation, Safety, environmental &amp; hazard control precautions, Control measures for hazards &amp; safety risks, Normal &amp; emergency situations, Different types of electrical, electronic &amp; control equipment.</td>
<td>STCW, MARPOL.</td>
<td>Safety issues, hazards &amp; precautions associated with the operation of all electrical, electronic &amp; control equipment, including navigation aids &amp; internal &amp; external communication systems, Safe operation and maintenance of high-voltage systems.</td>
<td>Duration: Constant, Frequency: Constant, Competence: STCW, Importance: High to critical.</td>
<td>Contingency for extra available manpower to rectify malfunctions outside of normal watchkeeping.</td>
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<td>RADIOTELPHONY</td>
<td>Transmit and receive information using the radio equipment of the ship: GMDSS radiocommunication equipment &amp; sub-systems, MF, VHF, HF, Satellite communications, EPIRBs, SARTs, Passenger radio/telephone services, Operational checks on equipment, Normal vessel-to-vessel service, Normal vessel-to-shore service, On-demand service, Auto seaplane service.</td>
<td>SOLAS, ITU Radio Regulations, STCW.</td>
<td>The principles of marine radiotelephony to accurately transmit and receive messages, Use of correct procedures for transmitting and receiving of signals using HF and VHF. Primary duties for radio watchkeeping not to be adversely affected by attending to radio traffic not relevant to the safe movement of the ship &amp; safety of navigation.</td>
<td>Duration: As required, Frequency: As required, Competence: STCW, Importance: High.</td>
<td>Additional to normal bridge watchkeeping.</td>
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<td>To provide radio services in emergencies</td>
<td>Auto seafarer radio service Safety services Navigational services Distress Urgency Medical advice Emergency position Search &amp; rescue Abandon ship Fire on board ship Partial or full breakdown of radio installations</td>
<td>SOLAS ITU Radio Regulations STCW</td>
<td>Principles of maritime radiotelephony to accurately transmit &amp; receive messages Use of correct procedures for transmitting &amp; receiving of signals using HF and VHF Deployment &amp; operation of satellite EPIRBs and SARTs</td>
<td>Duration: Constant during emergency Frequency: Constant during emergency Competence: STCW Importance: Critical</td>
<td>May require additional manpower above normal watchkeeping</td>
</tr>
<tr>
<td>MAINTENANCE AND REPAIR</td>
<td>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</td>
<td>Planned maintenance Condition-based maintenance Operational repairs Rectification of machinery/equipment/system malfunctions Residual repairs after departing a shipyard Technical in-voyage repairs maintenance &amp; overhaul of hull, machinery &amp; equipment in accordance with manufacturers’ recommended procedures Use of riding gangs</td>
<td>SOLAS STCW Class</td>
<td>Undertake essential ship/system/machinery maintenance during peak workload conditions</td>
<td>Duration: Maintenance, continuous. Repairs, as required Frequency: Maintenance, continuous. Repairs, as required Competence: STCW Importance: High to critical</td>
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