



Container Ship Safety Forum e.V.

Guide to Safe Container Ship Operations

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First Edition
©2019

published by:
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Introduction

The members of the Container Ship Safety Forum (CSSF) set themselves high safety standards in their determination to ensure that no harm is caused to the people that work on their ships or those that they come into contact with through their operations.

In this, they work closely together – measuring performance, benchmarking with their peers, setting targets for improvements and sharing best practice. The drive for safety is a continuous mission.

This new Guide to Safe Container Ship Operations is a strong indication of the CSSF's commitment to continued improvement in safety. It objectively sets out the practices and procedures associated with safe container ship operations. These practices and procedures are meant to be challenging – but, having said that, in the vast majority of instances they are already being pursued by the CSSF's members.

Purpose

Hence, the Container Ship Safety Forum provides references to operational standards in line with its objective of supporting members in their own efforts to improve and operate at the highest levels of safety. The Container Ship Safety Forum represents a significant proportion of the global container fleet and it is the objective of the forum to demonstrate that members consistently deliver high levels of safety performance.

This is not an inspection or audit checklist, nor is it a self-assessment document, and it is not intended to be a measure by which stakeholders may measure or compare one company with another. It is a living document that is expected to be periodically updated to reflect changing standards, requirements and expectations. The practices and procedures described in this guide can be successfully implemented – indeed, everything included in this guidance has been used and has helped to achieve desired improvements.

The CSSF believes that the container ship companies which work towards the successful implementation of the practices described will indeed achieve improved safety and performance standards.

Scope

The Guide to Safe Container Ship Operations is limited in its scope to personal and operational safety. The document does not include security, environmental or crew welfare issues except where there are direct safety implications.

The members of the Container Ship Safety Forum represent a diverse mix of container operations and as such recognise that Companies have different safety management objectives and different management systems. To support that this guidance document is intended to help container ship owners, operators and managers develop their own procedures that fit in with and compliment their own company cultures and management systems.

It is intended to be ambitious and help raise safety standards within the container sector but it is not intended to contain prescriptive procedures or instructions and should not be used in that way.

Chapter 1: Policies and Management Commitment

The company should have in place policies and procedures that provide clear leadership and commitment from the highest levels of management to achieve the company's performance objectives.

Senior management leadership

- 1.1 Senior management should demonstrate a clear commitment to the organisation's values in documents that include mission statements, policies and procedures.
- 1.2 Senior Management should ensure that the policies cover all the company activities and reflect the company's expectations. The Company should consider the use of Policy statements for issues including safety, security, health, environment, quality, business ethics and cultural awareness.
- 1.3 Senior management should demonstrate a clear commitment to the implementation of the Safety Management System during periodic reviews of mission statements, policies, key performance indicators (KPIs) and other performance feedback.

Instructions, procedures and guidance

- 1.4 The company should ensure that procedures and guidance documents are developed in consultation with those who will have to implement them.
- 1.5 Procedures and guidance should be provided in a way that is easy to access, clear and simple to use.

The review and amendment of procedures and guidance

- 1.6 The system for formally reviewing procedures and guidance should ensure that the content is relevant and appropriate.

Encourage proactive feedback

- 1.7 The system should encourage proactive feedback of incidents, accidents, near-misses, the results of inspections and lessons learned.
- 1.8 The system should also encourage the identification, feedback and reporting of best practices or examples of good performance, such as when targets are achieved.

Setting standards

- 1.9 Senior management should communicate the organisational targets and objectives to everyone in the workforce (on board and ashore).
- 1.10 Managers should set company standards and provide tools by which the achievement of these standards may be measured, such as KPIs.
- 1.11 Managers should set targets to achieve specific organisational objectives, and use KPIs such as incidents, accidents, inspection and audit results, near-misses and best practices identified, to measure progress towards achieving those objectives.
- 1.12 In addition to the lagging indicators described above, the company should also define relevant leading indicators to help proactively drive performance.
- 1.13 The targets and objectives set should be discussed at intervals appropriate to the size of the fleet and the level of activity, to ensure that the targets remain relevant and that progress towards achieving them is maintained.

Use of benchmarking

1.14 The company should benchmark its performance against other organisations or other industry bodies.

1.15 The company should use benchmarking techniques to support the process of continual improvement.

Shipboard management should be aware of the targets and objectives set and how they can contribute to the company achieving its goals and objectives.

Chapter 2: Personnel (shore-based and seagoing)

Shore-based personnel

The company should have procedures in place to ensure that the management of the fleet is fully supported by shore-based personnel who are competent to carry out their duties and responsibilities. All personnel records should be maintained at all time in accordance with the applicable data regulations.

Recruitment

- 2.1 The pre-recruitment process should include checks that applicants have the appropriate qualifications and experience.
- 2.2 The company should specify the minimum qualifications and experience required for each shore-based position.
- 2.3 The recruitment process should include verification that the qualifications of new recruits are genuine. This process includes checking certificates with the issuing authorities and contacting former employers to verify any experience referred to by the prospective new employee.
- 2.4 The recruitment process should identify any training needed to ensure that personnel have the required skills and capabilities.

Familiarisation

- 2.5 There should be a formal familiarisation process in place for newly recruited shore-based staff. This should include a written plan for the formal induction of new recruits, to show that the inductee has received the appropriate training and familiarisation necessary to undertake their new responsibilities and accountabilities. The process should cover the scope of all company policies.

Appraisals

- 2.6 A formal staff appraisal should be used to ensure that shore-based employees undergo a performance assessment at least annually. Any issues highlighted in appraisal reviews should be given priority and resolved.

Training and development

- 2.7 The company should have a process to ensure that shore-based employees retain core technical skills through new training, refresher training and participation in industry forums, seminars and conferences.

- 2.8 The company should identify key staff and include succession planning within the appraisal process.
- 2.9 Office resource levels should be reviewed during management review meetings.
- 2.10 The company should consider rotating senior onboard personnel through office assignments.
- 2.11 There should be a documented handover procedure in place for shore-based personnel. The procedure should ensure that scope of the hand over is appropriate to the role of the employee.

Records

- 2.12 The company should maintain up-to-date records of qualifications, experience and training courses attended, for all shore-based staff.
- 2.13 Targets for retention rates should be determined and monitored.
- 2.14 The company should monitor the retention rates of shore-based personnel.

Shipboard personnel

The company should have procedures in place to ensure that all seagoing personnel are competent to be employed in the rank and position they are assigned and able to contribute positively to the effective operation of the vessel.

Recruitment

- 2.15 The company should have a documented recruitment process, including interviews and details of the minimum experience and competency requirements for each rank.
- 2.16 The company should aim to fill senior officer positions from within its own ranks.
- 2.17 The company should have an enhanced recruitment and interview process for senior officers. This process should be conducted by shore management and include an introduction to company philosophy and structure, and an outline of expectations and defined responsibilities.
- 2.18 The company should have a system to authenticate certificates and maintain records of these checks.
- 2.19 Medical checks should be conducted as part of the selection and recruitment process. The medical examination should be conducted by approved medical practitioners.

- 2.20 Where manning agencies are used, the company should be involved or have input in the recruitment process.
- 2.21 Manning agencies used by the company should be audited to ensure that their practices meet the ship operator's selection and recruitment procedures. Audits should be sufficiently frequent to ensure that the company's needs and objectives are being met.
- 2.22 The company should have procedures in place to ensure that crew changes are planned to take into account the balance of experience on board and should provide clear guidance on how newly recruited and newly promoted crew members are assigned to vessels.

Familiarisation

- 2.23 The company should have a formal and documented programme in place to provide all shipboard personnel with appropriate pre-joining familiarisation with company policies and requirements.
- 2.24 The company should have a formal procedure to identify key shipboard personnel and provide guidance on the handover process that should be used by key shipboard personnel.

Appraisals

- 2.25 A process should be in place to screen new shipboard personnel for job competence at an appropriate stage.
- 2.26 An appraisal process should be in place for all shipboard personnel. These appraisals should include the identification of training needs or other development requirements and should be fully documented.
- 2.27 Appraisal and competence development processes for vessel personnel should be linked to future training and promotion requirements.

Training and development

- 2.28 The company should define the training requirements for all its seafarers in a document such as a training matrix. This document should describe company-specific training requirements that are in addition to the minimum requirements of the International Convention on Standards of Training, Certification and Watchkeeping (STCW) or of the relevant authority for the vessel and the trade.
- 2.29 The company should have a procedure to ensure that crew members assigned to vessels with specific training needs for vessel type or operation are appropriately trained.

- 2.30 The company should have a procedure to monitor initial and refresher training for all ranks.
- 2.31 The company should have a procedure to monitor the quality and effectiveness of training courses.
- 2.32 The company should have a process where any additional training requirements that may be identified are formally reviewed and considered.
- 2.33 Where appropriate, training should include the use of audio-visual training aids and/or computer-based training.
- 2.34 The company should organise seminars and meetings for sea staff to promote and enhance its Safety Management System.

Policies

- 2.35 The company should have a formal drug and alcohol policy that is implemented, with a system in place to monitor its effectiveness on a regular basis.
- 2.36 The company should monitor retention rates and set appropriate targets for shipboard personnel as part of the Management Review.

- 2.37 The company should have a procedure to monitor and manage crewing needs, including future crewing needs, which should include factors such as age profile, promotion prospects for key positions and future fleet and ship type needs.
- 2.38 The company should have procedures in place to promote high standards of housekeeping and hygiene, particularly in food storage and preparation.
- 2.39 The company should implement health awareness campaigns.
- 2.40 The company should have a documented disciplinary process.
- 2.41 The company should have procedures to ensure that the work and rest hours of all personnel are in line with STCW or the relevant guidelines for the vessel, and that work and rest hours are being accurately recorded. The company should have procedures to address any issues or non-conformities that are identified.
- 2.42 The company should have procedures to ensure that after travelling to join a vessel, crew members are adequately rested before starting work.

Chapter 3: Management of Safety

The company should have a robust Safety Management System (SMS) that works to promote and facilitate the achievement of the company's safety objectives. The SMS should provide for formalisation of important company activities and processes, identifying those that present the most significant risks to crew members or others who may work on board the ship or be affected by shipboard activities. The SMS should promote learning from incidents to achieve continual improvement in the company's safety performance.

Safety Management System

- 3.1 The company should have a Safety Management System that includes procedures, instructions, guidelines, checklists, etc. This should be written in a language and style that is easily accessible, is easy to understand and keeps the user of the material in mind (seafarers and shore-based staff). The language should be easy to follow and avoid ambiguity.
- 3.2 The company should have procedures for the proactive identification of hazards. Such hazard identification could include risk assessment feedback, behavioural safety reports, PPE (personal protective equipment) compliance monitoring, performance appraisals, audit reports, safety inspections, etc.
- 3.3 The company should have formalised procedures to ensure that the safety aspects of complex issues, including non-routine tasks, emergency

tasks and temporary or permanent change of use or purpose are captured and addressed through hazard identification and risk assessment.

- 3.4 The company should use leading indicators (such as hazard identification, risk assessments, behavioural safety reports, PPE compliance monitoring, performance appraisals, audit reports, safety inspections) and lagging indicators (such as accident and incident reports, PSC inspections, non-conformance reports and breakdown and failure reports) to monitor progress towards achieving the safety management objectives.
- 3.5 The company should have procedures in place for onboard safety inspections to be carried out at appropriate intervals by a designated officer. There should be a documented follow-up and close-out process for any issues identified during these inspections.
- 3.6 The company should have procedures to encourage near-miss reporting and provide appropriate follow-up, including responses on issues identified and analysis of the causative factors.
- 3.7 The SMS should include guidance on the identification of high potential near-misses, which should be prioritised for analysis and attention.

- 3.8 The company should have appropriate tools, systems and software to support its safety management objectives. The tools should be appropriate to the fleet size and activity and ensure that safety management information such as reports, reviews, inspections, etc., as well as associated data, can all be properly handled and analysed to further the safety management objectives.
- 3.9 The company should provide a library of appropriate guidance and references, supported by an effective document control system to ensure that the correct versions are available.

Safety management – management and leadership

- 3.10 Shore-based managers, superintendents and senior officers should always set a good example by strictly following all safety procedures and always using the correct PPE.
- 3.11 Office-based managers, including senior managers and line managers, should make periodic visits to managed vessels to demonstrate the company's commitment to safety and performance standards.
- 3.12 The company should have procedures to capture, assess and act upon valuable information and feedback that can be provided in Masters'

reviews and management system reviews. Effective procedures to respond to, follow up and close out feedback should be in place.

- 3.13 Safety performance targets and objectives should be set and the progress towards achieving these targets should be periodically reviewed. Appropriate feedback about progress towards achieving these goals should be provided to the managed fleet.
- 3.14 The company should have systems to ensure that individual crew members understand the organisational safety objectives and how they can contribute to safety on board and the achievement of those objectives.

Specific safety training

- 3.15 The company should provide training in excess of STCW requirements for crew members who are involved in ensuring that the company safety management objectives are being delivered on board. Training should be provided for activities and responsibilities such as safety inspections, hazard identification, preparation of risk assessments, accident and incident investigation, and the delivery of tool box talks.

3.16 The company should have a formalised process to review training programmes and training needs across the managed fleet. Procedures should be in place to provide appropriate recommendations when the company training plans and objectives are being set.

Incident investigation and analysis

3.17 The company should have procedures to ensure that there is timely reporting of any incidents or accidents.

3.18 The company should have a procedure to describe how incidents and accidents will be followed up, what actions will be taken, who will be responsible for actions to be taken and the timescales for close-out.

3.19 The Safety Management System should include defined responsibilities for reporting incidents and accidents, ensuring that the investigation is completed and any subsequent actions required are completed.

3.20 The company should have procedures to ensure that an appropriate and competent person carries out the investigation. Personnel involved in incident investigation should be trained to an appropriate level in investigation techniques.

3.21 All relevant incident details should be captured for further analysis.

- 3.22 The company should use a systematic method for root cause analysis.
- 3.23 The company should have formal procedures in place to ensure that relevant authorities are notified (flag, classification society, coastal state, etc.).

Safety management – sharing information

- 3.24 The company should have procedures for disseminating safety information to the managed fleet through the use of safety bulletins or safety messages.
- 3.25 The company should have procedures that capture examples of safety best practice. These should be assessed and circulated to the fleet.
- 3.26 Where appropriate, lessons learned from incidents and best practice examples should also be shared with other industry groups or stakeholders, with the aim of improving safety.
- 3.27 The company should use leading and lagging indicators to identify appropriate safety campaigns. Safety campaigns should be developed with supporting material and be time-based, with defined learning points and objectives.

3.28 Safety campaigns should be identified and planned in coordination and consultation across the company, including departments and functions involved in shore-based management as well as the shipboard crew members.

Chapter 4: Navigation and Bridge Management

The company should have formal procedures in place to ensure that the vessel can be navigated safely. The procedures should be sufficiently comprehensive to provide guidance on how the company's expectations will be met. The procedures will cover the provision and use of navigation and bridge equipment, navigational watchkeeping and effective bridge team management.

Responsibilities and authorities

- 4.1 The company should have procedures that identify the shore-based manager who is responsible for safe navigation and the maintenance of navigational standards.

Navigational standards

- 4.2 The company should have procedures to ensure that navigational standards and performance are monitored and that navigational procedures are periodically reviewed.
- 4.3 The company should ensure that the Master provides clear and written standing orders for bridge watchkeepers, describing his / her expectations for maintaining a safe navigational watch and including clear instructions on when the Master must be called because of a change in situation. The company should also provide guidance for the Master regarding the

frequent use of the bridge order book.

- 4.4 Company procedures should describe the roles and responsibilities of all members of the bridge team, including the roles of lookouts, helmsmen and additional officers.

Navigational equipment

- 4.5 The company should have procedures in place to ensure that navigational equipment is maintained, reliable and operational.
- 4.6 The company should have procedures that identify navigational equipment considered as critical equipment and also ensure that the maintenance of this equipment is controlled and monitored in the vessel's Planned Maintenance System.
- 4.7 The company should have procedures in place to ensure that the vessel can at all times continue to navigate safely in the event of a breakdown or failure of navigational equipment. These procedures should include a formal process to assess the risks associated with the breakdown or failure of any navigation equipment and what temporary measures or changes may need to be applied. The impact of any changes in use or availability should be assessed and a procedure should be in place to ensure that all identified risk mitigation actions have been taken.

- 4.8 The company should have in place procedures that provide guidance on the actions to take in the event of a failure of critical navigation equipment.
- 4.9 The company should have procedures to monitor failures and breakdowns of navigational equipment and identify recurring failures, and options for preventative maintenance or other actions.
- 4.10 The company should have procedures to ensure that managed vessels are provided with the required charts, publications, electronic licences, etc. as required, from a recognised and approved chart agent, in good time to enable proper passage planning and a thorough evaluation of the intended passage.
- 4.11 The company should have arrangements and procedures to ensure that there is adequate technical support available for shore-based managers and ships' officers to address any issues with navigational equipment.

Bridge team management

- 4.12 The company should have procedures to ensure that there are sufficient resources available for appropriate bridge watch manning at all times and in all circumstances.

4.13 The company should provide guidance on appropriate bridge watch compositions for all known and expected circumstances.

Training and familiarisation

4.14 The company should have procedures to identify and provide all the familiarisation training that is required and appropriate for the navigation equipment that its officers will be expected to use. The company should identify what is required to be provided as training and what will be included in the shipboard familiarisation procedures.

4.15 The company should have procedures to ensure that the core skills of ship navigation officers are assessed and maintained.

4.16 The company should have a document that describes its expectations and details all navigational training courses applicable for navigation officers serving on board managed vessels.

4.17 The company should have a procedure to ensure that all navigation officers complete formal training in Bridge Team Management or Bridge Resource Management Training.

4.18 The company should have procedures to identify which officers should attend specific ship handling training.

Audits and the assessment of navigational standards

- 4.19 The company should have procedures and guidance for the Master to conduct a documented navigational audit to ensure compliance with the applicable regulations and the company's requirements.
- 4.20 In addition to the Master's navigational audit, the company should have procedures for shore-based specialist auditors, who are independent of the fleet management team, to carry out navigational audits and assessment of performance. This audit should be carried out while on passage and include an assessment of the effectiveness of the bridge team.
- 4.21 All navigational audit reports should be handled in accordance with the company's management system, ensuring that all items reported are formally followed up and closed out.
- 4.22 The company should have a procedure to ensure that any training needs identified during the audit process are captured and provided. This should include periodic reviews of the scope of training and familiarisation provided, to ensure that it is still relevant and sufficient.

Chapter 5: Mooring, Anchoring and Towing Operations

The company should have formal procedures in place to ensure that mooring, anchoring and towing operations are effectively and safely managed.

Mooring – general

5.1 The company should provide guidance and procedures where required to ensure that mooring, anchoring and towing operations can be carried out safely.

Risk assessment and tool box talk

5.2 The company should carry out a documented risk assessment that addresses mooring, anchoring and towing operations.

5.3 The risk assessment should include consideration of at least the following:

- a) the mooring equipment, b) the type and layout of mooring equipment,
- c) the intended mooring configuration and d) the type of mooring lines being used and their characteristics.

5.4 The company should provide guidance on the appropriate use of personal protective equipment (PPE) during mooring, anchoring and towing.

5.5 The company should have in place a documented procedure, to include a tool box talk or safety briefing carried out by the person in charge prior to

any mooring or anchoring or towing operation. This briefing should include identification of the hazards related to the intended mooring operation and the circumstances at the time, including the snapback zones.

- 5.6 The company should provide guidance on how effective communications are to be maintained throughout the mooring, anchoring or towing operation.

Manning, competence, familiarisation and supervision

- 5.7 The company should have procedures in place to ensure that all managed vessels have sufficient crew members to carry out mooring, anchoring and towing operations safely with the equipment provided.
- 5.8 The company should provide guidance on how mooring operations will be managed and carried out. This should include guidance on factors such as the number of crew members required, and the rank or experience of those involved, to carry out mooring-related tasks such as handling tug lines, operating winches and working with ropes on drum ends.
- 5.9 The company should provide guidance to ensure that new crew members who are expected to be involved in mooring operations have a briefing or familiarisation of the mooring equipment, mooring hazards, roles,

responsibilities and communications.

- 5.10 The company should have procedures in place to ensure that mooring, anchoring and towing operations are carried out and supervised by appropriate and suitably experienced personnel.
- 5.11 The company should have procedures in place to monitor changes in environmental conditions (wind, tides, river currents, passing traffic, etc.), to ensure that the vessel can remain safely moored.
- 5.12 If the terminal does not provide any guidance on critical wind velocity for remaining alongside, the Master should provide guidance to watchkeepers regarding actions to take.

Mooring equipment and mooring lines

- 5.13 The company should have maintenance procedures – a Planned Maintenance System (PMS) – to ensure that all mooring equipment is maintained in good order and safe for use. This includes winches, drums, rollers, leads, bollards, etc.
- 5.14 The company should have procedures in place for the inspection and monitoring of mooring lines. This should include guidance on when mooring lines should be retired.
- 5.15 The company's Planned Maintenance System should include the inspection and testing of winch brakes.

5.16 The company should provide documented guidance on the use of self-tensioning winches.

Chapter 6: Cargo Operations

The company should have formal procedures in place to ensure that cargo can be safely loaded, stowed, secured and discharged. The company should provide written procedures to ensure that appropriate equipment is provided and maintained to facilitate the safe carriage of cargo and that the officers responsible for cargo operations are adequately trained and competent to carry out their tasks and responsibilities.

Manning

- 6.1 Procedures should be in place to ensure that manning levels are appropriate at all times, that the cargo operations are adequately monitored and that cargo is loaded as described in the cargo plan.
- 6.2 Procedures should be in place to ensure that a suitable and qualified (competent) ship's officer is in charge of all cargo operations.
- 6.3 Procedures should be in place to ensure the proper information exchange between the local port agent, terminal operations representative and central planner.

Cargo plans

- 6.4 The company should have procedures to ensure that cargo operations are properly planned and carried out. The procedures should ensure that all the required information is available and communicated. This

information would normally include, but not be limited to: cargo plan, stowage positions, stack weights, the vessel's loaded condition and documentation for IMDG, reefers and any special cargo.

Cargo loading

- 6.5 The company should have procedures to ensure that approved loading software is used to calculate the vessel's loaded condition at all stages of the voyage.
- 6.6 Procedures should be in place to check the loading software by performing test conditions and then comparing them with the approved conditions of the classification society.
- 6.7 The company should have procedures to ensure that the vessel's loaded condition and cargo plans can be communicated effectively with the shore-based cargo planners.
- 6.8 The company should provide Masters with clear guidance about what actions to take if cargo plans do not meet the required safe loading criteria.

Cargo securing

- 6.9 The company should provide guidance on the monitoring of stack weights and the limitations of the lashing systems.
- 6.10 The company should provide clear guidance to Masters on the actions to take if cargo plans indicate that stack weight limits may be exceeded.
- 6.11 The company should have procedures to ensure that Masters and ships' officers are able to plan and calculate safe lashing by the use of a computerised lashing programme.
- 6.12 Cargo securing/lashing operations should be monitored by cargo watch personnel to ensure that lashings are secured correctly, as planned and in a safe way.
- 6.13 The company should have procedures for routine inspections and maintenance of all lashing equipment, which should be carried out in accordance with the Cargo Securing Manual (CSM) and manufacturer's instructions.
- 6.14 The company should have procedures in place to ensure that damaged or worn lashing equipment is removed from use and maintained or replaced as appropriate.

- 6.15 The company should provide guidance to ensure that there is proper control and handling of the ship's lashing equipment (lashing gear boxes). This guidance should ensure that gear boxes are returned on board, not damaged and stowed safely.
- 6.16 The company should provide procedures to ensure that the ship's lashing boxes are adequately marked with the ship's name, safe working load and container prefixes, and that they are correctly certified.
- 6.17 The company should have a procedure to ensure that lashing gear boxes are including in the cargo lashing plan and positions of lashing gear boxes are reported to the ship's agent or stevedores at the next port of call.
- 6.18 The company should provide appropriate lashing software and have a procedure to ensure that lashing forces are calculated and the lashing system is assessed and monitored for all stages of the voyage.
- 6.19 The company should provide training in the use of loading and lashing software for officers responsible for cargo operations, and should also arrange periodic refresher courses.

Reefers

- 6.20 The company should have procedures for reefer cargo handling on board, including setting out responsibilities for the monitoring and reporting of reefer cargo container malfunctions. This should include guidance into the use of remote monitoring where provided.
- 6.21 The company should provide guidance on the repair of reefer containers, including: the carriage of spares and equipment, requisitions, the availability of technical references, shore-based support and risk assessments for repair work on reefer containers.

Exceptional or special cargo

- 6.22 The company should have procedures in place to communicate with the terminal to ensure that any breakbulk/out-of-gauge or other 'special cargo' is properly identified in the cargo loading plans and stowed correctly. The company should provide guidance on how and when to check lashings used on any such cargo, both at the time of loading and during the voyage.

6.23 The company should provide guidance on the carriage of over-height containers, out-of-gauge containers or high cube containers carried underdeck.

Dangerous goods (IMDG)

6.24 The company should have procedures to ensure that dangerous goods (DG) containers are checked by a competent officer to ensure that the container is correctly positioned and secured and that the correct signage is in place. Further, the officer should ensure that containers packed with dangerous goods are identified before loading and that the stowage location is checked to ensure that it meets the requirements of the IMDG Code. The competent officer should also check for any visible signs of leaks or damage.

6.25 The company should have procedures to ensure that crew members have appropriate HAZMAT training.

Care of cargo

6.26 The company should have procedures for the safe carriage of cargo at sea – these should include, but not be limited to: checks of lashings,

particularly after periods of bad weather, checks of DG containers, reefer checks, checks of hold bilges, checks of breakbulk lashings, hatch cover securing, etc.

- 6.27 The company should provide guidance on actions to take in the event of leaks from containers, to ensure that any required actions can be carried out safely and in compliance with appropriate regulations.
- 6.28 The company should have procedures to ensure that the necessary equipment and materials are available on board to minimise the risk of a leak resulting in harm or pollution.
- 6.29 The company should provide guidance on cargo ventilation related to the carriage of IMDG cargoes, underdeck reefers or other special cargoes.
- 6.30 The company should provide the Master with guidance about cargo care during the sea passage, including weather routing, reductions of speed and alterations of course, to avoid damage to cargo or excessive rolling and prevent phenomena such as parametric resonance or parametric rolling.

Safe working procedures/terminal safety

- 6.31 The company should provide guidance to ensure that cargo handling operations, including the lashing of cargo, is carried out safely. Procedures should be in place to ensure that a responsible officer carries out periodic inspections of the main deck and cargo areas to identify any defects or damage that might have an impact on safe cargo operations, such as means of access, walkways, lashing bridges, railings and removable guards or fences.

Opening/closing hatch covers

- 6.32 The company should provide guidance to ensure that the opening and closing of hatch covers (pontoon, lift on/lift off or other types of hatch covers) are performed safely during cargo operations in port. The guidance should focus on good coordination with the terminal to ensure that the operation is carried out safely.

Cargo operations using a ship's crane

- 6.33 The company should have procedures to ensure that any ship's cranes and spreaders are fit for purpose and tested before being used for cargo operations.
- 6.34 The company should have procedures to ensure that only suitably trained crew members carry out tests or operate the ship's cranes.
- 6.35 The company should have procedures in place to ensure the proper maintenance and inspection of the ship's cranes through the Planned Maintenance System (PMS).

Chapter 7: Maintenance and Reliability

The company should have procedures to ensure that all managed vessels operate safely, efficiently and reliably. Maintenance and reliability procedures should include guidance on the identification and maintenance of critical and non-critical equipment, periodic checks, tests and inspection, overhaul and performance monitoring.

Planned Maintenance System

- 7.1 A class-approved and ship-specific Planned Maintenance System (PMS) should be in place on every managed vessel.
- 7.2 The company should have a formal process in place to ensure that all relevant equipment is included in the PMS. This should include a detailed consideration of the following categories: engine machinery, deck machinery, hull, tanks, holds, electrical equipment, navigational equipment and safety equipment, including additional dangerous goods cargo firefighting equipment.
- 7.3 The PMS should be computer based and include sufficiently detailed guidance on when maintenance is due. This may be based on: running hour-based maintenance (as recommended by maker); time-based maintenance or condition-based maintenance.

7.4 The information available in the shipboard PMS should be capable of being transmitted or replicated to shore-based managers at regular and appropriate intervals.

Critical systems and equipment

7.5 Critical systems and equipment should be defined and identified in the vessel's PMS.

7.6 All items listed should be identified and easy to find in the PMS.

7.7 There should be clear reporting requirements when critical systems, alarms or equipment become defective, or require planned or unplanned maintenance.

7.8 Shore management should be informed when there is a failure of a critical system or piece of equipment.

7.9 Maintenance of a critical system or critical equipment should follow defined procedures that include a risk assessment, which requires approval at the appropriate levels of management before the equipment or system is shut down.

Shutdown of critical equipment

- 7.10 If the agreed shutdown period for critical equipment or systems is to be exceeded, any extension or alternative actions should require review by shore management.
- 7.11 A further risk assessment should be undertaken if circumstances (such as environmental conditions, crew fatigue or operational parameters) change.
- 7.12 The vessel operator should give special attention to recording test and performance data for all critical equipment and systems.

Defect reporting

- 7.13 A machinery defect reporting system should be in place.
- 7.14 The defect reporting system should cover all relevant cases where safety of the ship might be affected.
- 7.15 Root cause analysis and corrective action should be submitted from ship to shore and vice versa.

Maintenance System Review

- 7.16 Management should have a procedure to undertake regular review of the vessel's equipment and systems, and their maintenance status.
- 7.17 The equipment and system review should include both due and overdue items and the clarification of same, as well as a process to review periodically the scope and extent of the PMS.
- 7.18 Procedures should be in place to check that all statutory and class certificates are valid and available on board. These procedures should include class status report, survey planning, follow up and close out.
- 7.19 There should be a system in place to track and monitor any dispensations or exemptions.

Superintendence

- 7.20 A procedure should be in place which clearly defines the frequency of ship visits by a technical superintendent. Ideally this should include being on board while at sea, to get a clear/true picture of the ship's condition in operation.
- 7.21 The scope of the technical inspection should ensure that all areas and items of equipment are appropriately inspected.

- 7.22 The company should ensure that all other equipment, such as navigation equipment, is periodically inspected by an appropriately qualified superintendent.
- 7.23 The company should have a system in place to ensure that issues reported during inspections are followed up and formally closed out.

Spare parts

- 7.24 The company should provide guidance on what constitutes a sufficient stock of important spare parts. The amount of spares to be maintained on board should be based on failure rate (risk-based), trade area, lead time, manufacturers' recommendations, mandatory items, ship-specific items such as reefer sockets and experience-based input.

Maintenance

- 7.25 The company should provide guidance within the PMS for the inspection of ballast tanks, cargo holds and lashing bridges.
- 7.26 Where required, the company should provide guidance and/or equipment to allow safe access in order to complete these inspections (ladders, stages, etc.).

- 7.27 The PMS should include guidance on the reporting of the structural integrity and coating condition of ballast tanks, cargo holds, lashing bridges, hatch covers, coamings and deck areas. The PMS should provide for the results to be analysed, to allow advance planning of repairs.
- 7.28 The PMS should provide guidance on the inspection of hatch covers and container sockets. As far as practicable, records of the condition of the hatch covers and sockets should be maintained in order to plan maintenance during dry dockings.

Maintenance of safety equipment

- 7.29 The company should provide guidance to ensure the effective maintenance of all safety-related equipment on board, including life-saving appliances and firefighting equipment.
- 7.30 The procedures should ensure that suitable competent officers carry out tests and inspections.
- 7.31 The PMS should provide sufficiently detailed guidance on which equipment should be tested, and how, to ensure its reliability.
- 7.32 Appropriate records of all tests and inspections should be available on board.

7.33 A procedure should exist to record formally all maintenance or repair work that will be deferred to the dry docking period.

7.34 The company should provide guidance on what actions to take if inspections indicate that maintenance is required between planned dry docking periods.

Chapter 8: Emergency Preparedness

Procedures should be developed to ensure that companies are able to respond to emergency situations involving managed vessels. These procedures will include plans to prepare for emergencies and a schedule for drills and exercises. Companies should have systems to review any lessons learned from the drills and exercises, so that an effective Emergency Response can be provided in the case of any foreseeable incident.

The company should respond to and manage an incident from a dedicated emergency room.

Emergency preparedness – general

- 8.1 The company should have a schedule for emergency drills or exercises that address the range of foreseeable scenarios and involve both managed ships and the shore-based Emergency Response Team.
- 8.2 The company should carry out sufficient ship-shore drills to ensure that the shore-based Emergency Response Team is able to respond to all foreseeable emergency events for all managed ships, taking into account factors such as incident type, ship size, ship types, trading areas, etc.
- 8.3 The company should carry out drills and exercises on a regular basis and in line with the applicable rules and regulations of the Flag State and also the trading areas.

- 8.4 The company should have procedures in place to ensure business continuity in the event of an incident involving the main place of business and the Emergency Response facilities.

Personnel

- 8.5 The company should develop procedures that include a clear description of shipboard and shore-based roles and responsibilities.
- 8.6 The Emergency Response Procedures should identify the members of the Emergency Response Team, clearly set out their roles and responsibilities, and also identify their substitutes.
- 8.7 The Emergency Response Procedures should identify sufficient personnel to provide the resources that would be required in the event of a long-running incident.
- 8.8 The drill scenarios should be planned to ensure that individual roles ashore and on board are exercised.

External input and resources

- 8.9 Companies should consider using a specialised Emergency Response service, such as those provided by classification societies, to provide

specific expertise and advice about the vessel's condition (draft, trim, stability, bending moments, shear forces, longitudinal strength, etc.).

- 8.10 Companies should have arrangements in place to call on specialist external resources in an emergency situation, such as classification societies, salvage experts and media consultants. Companies should also have procedures in place to identify other stakeholders which should be involved or engaged during emergency situations. Emergency drills should include communication and involvement with external parties.
- 8.11 The Emergency Response Procedures should include references to other relevant emergency plans which may need to be followed in case of emergency, e.g. SOPEP (Shipboard Oil Pollution Emergency Plan), Panama Canal SOPEP and NTVRP (Non-tank Vessel Response Plans).

Reporting and notification

- 8.12 The Emergency Response Procedures should include an emergency contact list containing all the important 24/7/365 numbers of relevant office staff, authorities, class, insurers, etc.

- 8.13 The Emergency Response Procedures should ensure that each managed vessel has a dedicated number for Emergency Response notification that can be used 24 hours a day, seven days a week.
- 8.14 Reporting systems should be in place to enable ships to initiate the Emergency Response and provide initial details to the Emergency Response Team in a single call or message.
- 8.15 The company should have procedures in place to ensure that organisations or stakeholders, such as Flag States, classification societies, charterers, insurers and local authorities, are provided with information and reports as required.

Information

- 8.16 The company should have procedures to ensure that details of the vessel's loaded condition are readily available in the manager's office.
- 8.17 The company should have procedures to ensure that full details of dangerous goods cargoes carried on board are provided and available in the manager's office.

Ship-shore drills and exercises

- 8.18 Ship-shore drills should involve the company's Emergency Response Team and a managed vessel.
- 8.19 The drills should cover the various scenarios of the applicable emergency procedures and plans.
- 8.20 The drills should involve third parties as identified in the procedures, e.g. classification societies, Flag State authorities, national authorities, salvage companies, media response service providers, etc.

Emergency preparedness – facilities

- 8.21 The company should have sufficient and appropriate facilities available to sustain an Emergency Response for an extended period of time.
- 8.22 The company should have a suitably equipped and dedicated room (Crisis or Emergency Response Room) from where the shore-based response would be coordinated.
- 8.23 The company should use checklists and standard report formats to support the effective implementation of the Emergency Response Procedures.

- 8.24 The ship-shore drill should include activities or scenarios that test the Crisis Room equipment and the mobilisation of the Emergency Response Team.
- 8.25 Ship-shore drills should also be carried out during out-of-office hours, to test response times and the resilience of the Emergency Response Procedures.
- 8.26 Consideration should be given to involving seagoing staff in ship-shore drills in order to enhance the understanding on both sides.

Feedback and improvements

- 8.27 The results of the drills, including the feedback from participating third parties, should be clearly documented. Corrective actions identified as a result of the drills should be followed up in a timely and documented manner.
- 8.28 The feedback from ship-shore drills and actual incidents should be reviewed and training needs identified, to be included in the company training programmes.
- 8.29 Emergency Response Procedures should be periodically reviewed, taking into account any lessons learned or new information about hazards or

risks that may be gained from near-miss report scenarios, other reported or shared incidents, or reports from accident investigation branches, etc.