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GUIDELINES TO ASSIST INVESTIGATORS IN THE IMPLEMENTATION OF THE CASUALTY INVESTIGATION CODE (RESOLUTION MSC.255(84))

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,

NOTING WITH CONCERN that, despite the best endeavours of the Organization, casualties and incidents resulting in loss of life, loss of ships and pollution of the marine environment continue to occur,

NOTING ALSO that the safety of seafarers and passengers and the protection of the marine environment can be enhanced by timely and accurate reports identifying the circumstances and causes of marine casualties and incidents,

NOTING ALSO the rights and obligations of coastal and flag States under the provisions of Articles 2 and 94 of the United Nations Convention on the Law of the Sea (UNCLOS),

NOTING FURTHER the responsibilities of flag States under the provisions of the International Convention for the Safety of Life at Sea (SOLAS), 1974 (regulation I/21), the International Convention on Load Lines, 1966 (article 23) and the International Convention for the Prevention of Pollution from Ships (MARPOL) (article 12) to conduct casualty investigations and to supply the Organization with relevant findings,

CONSIDERING that each Administration shall conduct investigations of marine casualties and incidents, in accordance with SOLAS regulation XI-1/6, as supplemented by the provisions of the *Code of the international standards and recommended practices for a safety investigation into a marine casualty or marine incident (Casualty Investigation Code)* adopted by resolution MSC.255(84),

ACKNOWLEDGING that the investigation and proper analysis of marine casualties and incidents can lead to greater awareness of casualty causation and result in remedial measures, including better training, for the purpose of enhancing safety of life at sea and protection of the marine environment,

RECOGNIZING the need for *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)) to provide, as far as national laws allow, a common approach for States to adopt in the conduct of marine safety investigations into marine casualties and marine incidents,

RECOGNIZING ALSO the international nature of shipping and the need for cooperation between Governments having a substantial interest in a marine casualty or incident for the purpose of determining the circumstances and causes thereof,

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee, at its sixty-fifth session, and the Maritime Safety Committee, at its ninety-second session,

1 ADOPTS the *Guidelines to assist investigators in the implementation of the Casualty Investigation Code* (resolution MSC.255(84)), as set out in the annex to the present resolution;

2 INVITES all Governments concerned to take appropriate measures to give effect to the Guidelines as soon as possible in order to allow effective analysis when conducting a marine safety investigation and taking preventive actions;

3 REVOKES resolutions A.849(20) and A.884(21).

Annex

GUIDELINES TO ASSIST INVESTIGATORS IN THE IMPLEMENTATION OF THE CASUALTY INVESTIGATION CODE (RESOLUTION MSC.255(84))

1 INTRODUCTION

1.1 The purpose of these Guidelines is to provide practical advice for the systematic investigation of marine casualties and incidents and to allow the development of effective analysis and preventive action. The overall objective is to prevent similar casualties and incidents in the future.

1.2 The ultimate purpose of a marine safety investigation is to advance maritime safety and protection of the marine environment. In the context of these Guidelines, this goal is achieved by identifying safety deficiencies through a systematic safety investigation of marine casualties and incidents, and then recommending or effecting change in the maritime system to correct these deficiencies. It is not the purpose of a safety investigation to determine liability or apportion blame.

1.3 These Guidelines should result in an increased awareness by all involved in the marine industry of the human, organizational, environmental, technical and external factors that may be involved in marine casualties and incidents. This awareness should lead to proactive measures by the maritime community which in turn should result in the saving of lives, ships, cargo and the protection of the marine environment, improvements to the lives of marine personnel, and safer shipping operations.

1.4 These Guidelines apply, as far as national laws allow, to the investigation of marine casualties or incidents in which either one or more States have a substantial interest because the casualty or incident involves a ship under or within their jurisdiction.

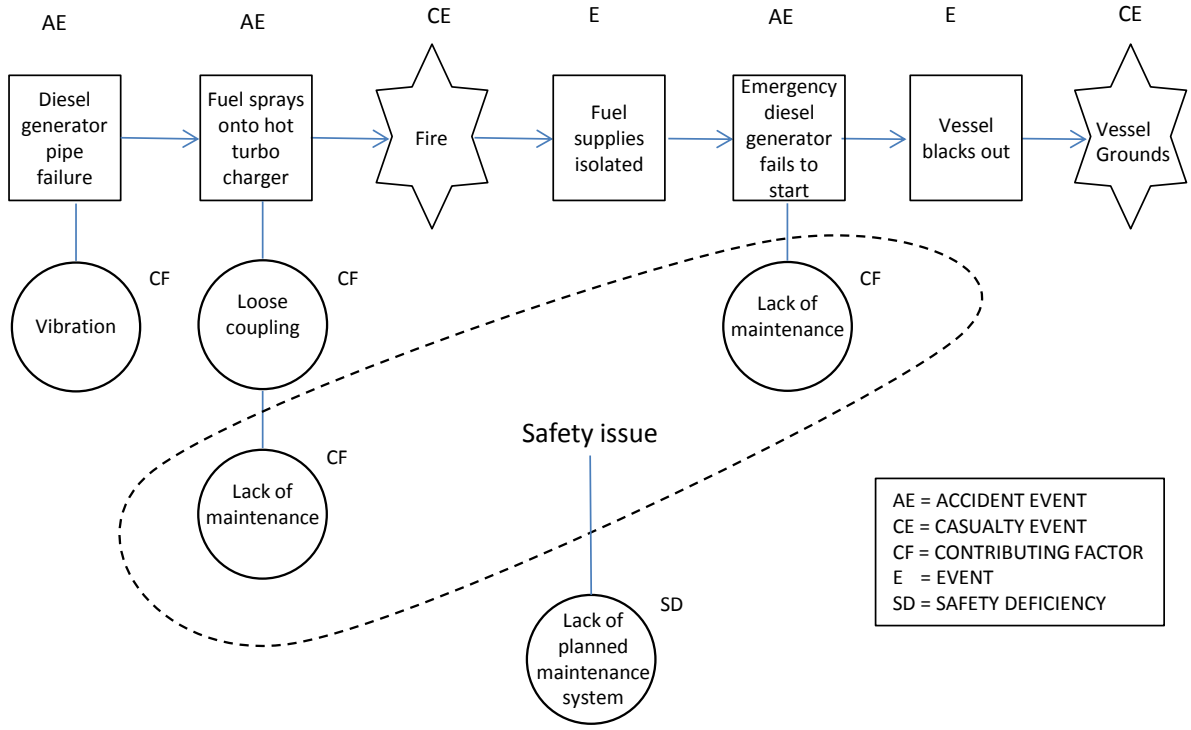
2 DEFINITIONS

2.1 Table of definitions

See chapter 2 of the Casualty Investigation Code (resolution MSC.255(84)) for terms not defined in these Guidelines.

Event	An action, omission or other happening.
Casualty event	The marine casualty or marine incident, or one of a number of connected marine casualties and/or marine incidents forming the overall occurrence (e.g. a fire leading to a loss of propulsion leading to a grounding).
Accident event	An event that is assessed to be inappropriate and significant in the sequence of events that led to the marine casualty or marine incident (e.g. human erroneous action, equipment failure).
Contributing factor	A condition that may have contributed to an accident event or worsened its consequence (e.g. man/machine interaction, inadequate illumination).
Safety issue	An issue that encompasses one or more contributing factors and/or other unsafe conditions.
Safety deficiency	A safety issue with risks for which existing defences aimed at preventing an accident event, and/or those aimed at eliminating or reducing its consequences, are assessed to be either inadequate or missing.

2.2 The following diagram illustrates how a sequence of events leading to a casualty occurrence would be classified using the above terms.



3 QUALIFICATIONS AND TRAINING OF INVESTIGATORS

3.1 To achieve a systematic and effective safety investigation the appointed investigators need to have expertise in marine casualty investigation and be knowledgeable in matters relating to the marine casualty or incident. Areas of expertise need to include evidence collection techniques, interviewing techniques, analysis techniques and the identification of human and organizational factors in marine casualties and incidents.

3.2 All investigators attending a marine casualty site should have sufficient knowledge in personal safety, taking particular note that the hazards present at a casualty site may well be beyond those encountered in normal ship operations.

3.3 A marine safety investigation Authority should consider developing a formal training programme to ensure that its investigators acquire the necessary knowledge, understanding and proficiency in marine safety investigation.

4 NOTIFICATION AND COOPERATION

4.1 Notification of a marine casualty or incident is to be provided to all affected parties as soon as reasonably practicable. Notification includes informing the parties involved in the casualty or incident according to chapter 20 of the Code, as well as any substantially interested State in accordance with chapter 5 of the Code. Notification should preferably be in a format that ensures a prompt acknowledgement from the addressee.

4.2 If the casualty or incident involves substantial interests of more than one State, the States should quickly reach an agreement on cooperation in accordance with chapter 7 of the Code. This agreement may include, but not be limited to:

.1 ensuring that the objectives of each participating State is in accordance with the IMO Casualty Investigation Code;

.2 which State will lead the investigation;

.3 the possibilities to share casualty information and draft safety investigation reports in accordance with chapter 13 of the Code, with regard to national legislation on confidentiality as well as the potential risk of safety investigation findings being used in criminal and civil lawsuits; and

.4 distribution of costs related to the investigation.

4.3 If an agreement in accordance with chapter 7 of the Code cannot be reached, the involved States should seek to share factual information to the greatest extent possible, being guided by the recommended practice in the Code.

5 INVESTIGATION

5.1 Extent of investigation

5.1.1 Marine casualties and incidents can have many causal factors and the underlying safety issues often exist remote from the casualty site. Proper identification of such issues requires timely and methodical investigation, going far beyond the immediate evidence in search for conditions which may cause future occurrences. Marine casualty or incident safety investigations should therefore be seen as a means of identifying not only the accident events, but also safety deficiencies in the overall management of the operation from policy through to its implementation, as well as in regulation, survey and inspection. For this reason safety investigations should be broad enough to meet these overriding criteria.

5.1.2 The extent of any safety investigation can be divided into five areas:

.1 people;

.2 environment;

.3 equipment;

.4 processes and procedures; and

.5 organization and external influences.

5.2 Initial response

An investigation should be carried out as soon as possible after an occurrence so as to limit the loss of perishable evidence including the degradation of witness memory. To be able to start promptly it is essential that the investigating State has a preparedness plan in place which, among other things, will facilitate:

.1 the ready availability of trained investigators;

.2 the availability of specialist help, including experts on human and organizational factors;

.3 ready access to 24-hour contact points for other marine safety investigation Authorities; and

.4 the availability of the necessary predictable resources.

5.3 Site management

5.3.1 Site management generally starts even before the investigator deploys to the casualty site. The pre-planning will often need to include:

.1 identification of competencies needed at the casualty site;

.2 identification of hazards and risks that the investigation team may encounter at the casualty site, and the precautions that need to be taken, as well as the personal protective equipment (PPE) that needs to be carried;

.3 identification of particularly vulnerable evidence that needs to be secured as soon as possible including Voyage Data Recorder (VDR) information, documentation of sites that for some reasons cannot be left unchanged until the team arrives, and repatriation of crew members; and

.4 a draft interview schedule that takes into account repatriation of seamen as well as the fact that persons involved can suffer from trauma.

5.3.2 There can be many different stakeholders involved in the aftermath of a marine casualty or incident, each with their own legitimate interests and responsibilities. Coordination at the casualty site is vital to make sure that the evidence collection is successful.

5.3.3 When arriving at the casualty site the hazard and risk assessment should be reviewed to identify any additional risks for the team and to put in place any necessary remedial action before the team starts its work.

5.4 Start-up meeting

In safety investigations involving more than one State it is generally wise to set up a meeting with representatives of the other substantially interested State(s) at an early stage. The purpose of the start-up meeting is, among other things, to facilitate:

.1 the sharing of knowledge of what is known about the marine casualty or incident;

.2 the development of an investigation plan;

.3 the delegation of investigation tasks (international coordination); and

.4 the identification of additional help in the form of specialists and/or technical expert examination.

5.5 Collection of evidence

5.5.1 During the safety investigation, investigators should aim to gather and record all the evidence and factual data which may be of interest within the scope of the investigation. Physical and documentary evidence and witness statements should be gathered not only at the casualty site, but also from all sources required to fully explain the accident events and their contributing factors (e.g. operation, management, inspection and regulation).

5.5.2 Evidence collection also needs to be broad enough to cover the human, organizational and environmental factors in relation to the casualty or incident. If a human and organizational factor specialist is required, it is essential to include this expert as early as possible in the investigation team.

5.5.3 To facilitate a comprehensive evidence collection it is often wise to:

.1 refer to generic checklists while remaining flexible as evidence once collected will often point to new areas of inquiry; and

.2 use a system to register the evidence collected (evidence log). This is particularly valuable in complex investigations or when more than one State is involved.

5.5.4 It is recommended that the fact-finding stage of the investigation process itself be kept separate from the complete analysis of the collected evidence leading to conclusions and recommendations. Fact finding usually includes, but is not necessarily limited to the areas covered in sections 5.6 to 5.10.

5.6 Inspection of casualty site

5.6.1 Inspection and documentation of the casualty site and/or places of interest for the investigation can include inspection of the ship/ships involved, a fairway where the casualty or incident occurred, and underwater survey and filming of the wreckage of a ship.

5.6.2 The collection of evidence that can deteriorate or disappear over time will always be the first priority in evidence collection when the investigator(s) arrives at the casualty site. Photo and/or video documentation of the site in general and in detail, and before any removal of evidence, is generally also a high priority.

5.6.3 Where there is perishable evidence and the investigator(s) may be delayed in arriving at the casualty site, there may be a need to give instructions for the evidence to be preserved.

5.7 Gathering or recording physical evidence

5.7.1 Physical evidence can include data from VDR and other electronic devices on board like electronic charting systems, central fire alarm units, as well as nautical charts, weather forecasts obtained on board and logbooks. Physical evidence can also include technical samples of oil, paint or fire residues, and pieces of broken machinery or other broken parts.

5.7.2 It is essential that the person who collects electronic, documentary or material evidence is skilled in applicable techniques for both collection and storage of that type of evidence to prevent contamination, further deterioration or loss.

5.7.3 Some information of great value can also be obtained from external sources such as CCTV, shore radar and radio surveillance systems and Marine Rescue Coordination Centres. Vessel Traffic Services (VTS) centres may also be able to provide valuable information, including recordings of radio traffic and AIS information.

5.8 Witness information

5.8.1 Witness interviews should be performed by persons skilled in interviewing techniques to reveal information the witness may be able to provide. The planning of the interview is essential for a successful outcome. Things to be considered include:

.1 time and location;

.2 any need for interpreters;

.3 constitution of the interviewing team and the roles of the team members;

.4 the particular needs of the witness; and

.5 the topic areas to be explored with the witness.

5.8.2 The interviewee should be informed, before the interview starts, about the purpose of the investigation and the conditions under which he/she will be providing information. The witness should generally be interviewed alone, or be accompanied by someone nominated by the witness. The nominated individual should, however, not be allowed to interfere with the interview. The witness should under all circumstances be allowed access to legal advice if he/she wants it (see chapter 12 of the Code).

5.8.3 The interview may be recorded or a written record may be made of the interview. A written record should be discussed with the witness to clarify any anomalies. Witness information should be verified wherever possible. Statements made by different witnesses may conflict and further supporting evidence may be needed.

5.9 Reviewing of documents, procedures and records

5.9.1 Documents to be reviewed can include personal and ship-related certificates, reports from the ship's classification society, maintenance records, the Master's standing orders, etc. An assessment may also be made of the company's Safety Management System from its safety policy through to its implementation within the organization.

5.9.2 Government agencies such as customs, quarantine and State Authorities may have useful information relating to crew lists, the general condition of the ship, ship certificates, etc. Coroners and medical records can provide valuable information. Port authorities and independent surveyors can also hold information of use to an investigation. Applicable regulations may also need to be examined.

5.9.3 A good investigation explores the extent of correlation between the documents and reality at all appropriate levels: this will generally require some specialist skills.

5.10 Conducting specialized studies (as required)

5.10.1 It can sometimes be necessary to conduct specialized studies to establish how a casualty or incident happened. This can include, for example, metallurgic specialist studies of broken machinery parts, analysis of oil or paint residues, calculation and reconstruction of a

ship's stability features, lashing calculations, specialist analysis of weather and sea conditions at the time and place of the casualty or incident, and the use of simulators to reconstruct and analyse a sequence of events.

5.10.2 Where a proposed testing of physical evidence is likely to change its state, other interested parties who may be relying on that evidence should be consulted.

5.11 Reconstruction and analysis

5.11.1 There are several different methods of organizing evidence to support reconstruction and analysis in safety investigation, each having its own benefits and drawbacks. To ensure that a casualty or incident is thoroughly examined from a safety point of view, it is essential that the investigation is done with a systemic perspective. A systemic perspective involves going beyond determining "who did what?" and to look for the conditions that influenced different relevant events, even when these conditions are to be found remote from the casualty site. A systemic perspective also puts human factors into context and includes the interactions between man, machine and the organization.

5.11.2 The analysis methods used will help the investigator to think in a structured way but will also have an effect on where the investigator will put his/her focus. Some methods focus on human factors; some support the understanding of the sequence of events; others are more supportive in a complex safety analysis or in understanding technical failures. Analysis methods should therefore rather be seen as tools in a tool box. A good investigation will choose the optimal set of analysis tools to meet the characteristics of that particular casualty or incident. However, the method or the combination of methods used in each investigation should as a minimum requirement support:

.1 reconstruction of the casualty or incident as a sequence of events;

.2 identification of linked accident events and contributing factors at all appropriate levels; and

.3 safety analysis and development of recommendations.

5.12 Reconstruction of the casualty events and their linked conditions

5.12.1 The first step in analysis is to review the factual information to clarify what is relevant and what is not, and to ensure the information is as complete as possible or practicable. This stage of the analysis should aim at determining how the marine casualty or incident occurred. The reconstruction is preferably done by using a method that enables a graphical description of the sequence of events. This is beneficial since it allows the investigator to discuss and present the case, and in particular to:

.1 identify gaps in the information;

.2 identify any conflicts in evidence;

.3 provide a graphical description of how different events are related; and

.4 identify contributing factors and their relation to different accident events.

5.12.2 Marine casualty or incident investigation is an iterative process and the reconstruction phase generally identifies a need to make a revision of the evidence collection plan.

5.13 Safety analysis

The purpose of a safety analysis is to get a more thorough understanding of the underlying safety issues that can cause or contribute to a casualty or incident. Some investigation analysis methods combine casualty reconstruction and safety analysis into one. Some basic analysis methods can be directly linked to the reconstruction of events, while other safety analysis tools can be derived from different accident causation models and are better used as stand-alone methods. Efficient safety analysis tools:

.1 encourage different perspectives of casualty or incident causation;

.2 support communication and deeper questioning;

.3 enable the identification of safety issues and safety deficiencies, including those remote from the casualty site; and

.4 enhance the development of effective remedial actions at all appropriate levels.

6 REPORTING

6.1 Reporting requirements

6.1.1 MSC-MEPC.3/Circ.4 requires particular marine casualty data to be entered into the GISIS marine casualties and incidents module, together with the final version of a marine safety investigation report.

6.2 Final report

6.2.1 To facilitate the flow of information, the final report of the safety investigation should be well structured and cover what is listed in paragraph 2.12 of the Code. The report should, within its different parts, clearly distinguish between facts and analysis.

6.2.2 Non-judgmental language should be used in the report reflecting the purpose to enhance maritime safety and protection of the maritime environment. Witnesses' names and personal information which may identify them should remain confidential.

6.2.3 In normal investigation practice, gaps in information that cannot be resolved are usually filled by logical extrapolation and reasonable assumptions. Such extrapolation and assumptions should be identified and a statement of the measure of certainty provided. Despite best efforts, analysis may not lead to firm conclusions. In these cases, the more likely hypotheses should be presented.

6.2.4 If safety recommendations are issued these should be addressed to those that are best placed to implement them, such as shipowners, managers, recognized organizations, maritime authorities, vessel traffic services, emergency bodies, and international and regional maritime organizations and institutions. Safety recommendations should always be supported by the facts and analysis of the safety investigation. To gain acceptance, recommendations need to be practical, necessary and likely to be effective.

6.2.5 Where it becomes apparent during an investigation that there is a safety deficiency that presents a serious potential risk to lives, ships or the environment, action should be taken to inform the people or organization responsible for managing the risk. This may take the form of an interim safety recommendation or some other means of correspondence. It is

important not to delay action to address such safety risks until the completion of the investigation.

6.3 Consultation

6.3.1 In accordance with paragraphs 25.2 and 25.3 of the Code, where it is practicable, the investigator should send a copy of a draft marine safety investigation report for comment to the interested parties as defined in paragraph 2.7 of the Code. This allows a process for correcting matters of fact within a report and the consideration of alternative hypotheses or opinions in relation to the analysis. In addition, it allows responsible parties, e.g. the ship operator, to indicate what safety action may have been taken in relation to a safety issue. Any such action taken should be included in the final report.

6.3.2 The investigator should consider the comments before preparing the final marine safety investigation report, being guided by paragraph 25.3 of the Code.

6.4 Publication

6.4.1 The final report should be made available to the public and the shipping industry in accordance with paragraph 14.4 of the Code. The Internet is a valuable tool for making a report available to the public.

6.4.2 A summary of the marine safety investigation report and any safety recommendations, translated into English and/or other major languages, will enable a global public to gain important safety information from the investigation.

6.5 Follow-up on safety recommendations

6.5.1 Every recommendation addressed to an individual or specific organization should be followed up within a reasonable period following the release of a final safety investigation report with a view to promoting safety action. It is also good practice to reinforce positive safety action taken to address a recommendation by making it public.

APPENDIX

AREAS OF HUMAN AND ORGANIZATIONAL FACTORS INQUIRY

The areas of inquiry set out in this appendix can be used in planning the investigation of human and organizational factors during a maritime safety investigation. Some areas of inquiry overlap or indeed incorporate multiple interactions. The guidance is not meant to be exhaustive, nor is it intended to be a checklist where each point must be investigated every time. Some areas may not be relevant in the investigation of a particular occurrence, while other areas may require deeper investigation. As new human and organizational factors/issues emerge, new areas of inquiry will need to be explored by investigators.

Skilful interviewing can help the investigator to eliminate irrelevant lines of inquiry and focus on areas of greater potential significance. The order and manner in which questions are asked will depend on who is being interviewed and on his or her willingness and ability to recall and describe personal behaviour and personal impressions. Training in cognitive interviewing techniques will assist investigators in eliciting accurate information from interviewees, and is highly recommended. Further, because human interactions, including interviews, can be subject to misunderstanding, it will normally be necessary to verify, cross-check or augment information received from one person by interviewing others on the same subject(s).

While important human and organizational factors/information can be gained through interviewing, investigators must ensure that they also seek additional information through other means. Examination of rosters, procedures, personnel records, safety occurrence reporting records and risk assessment protocols (for example) may provide critical insights into practices, norms and attitudes potentially affecting safety.

SHIPBOARD ISSUES

1 Training and experience

- Position or rank held.
- Certificate held; length of time the certificate has been held; where trained.
- Experience in the position; both on this ship and over career.
- Length of time on this contract and overall on board the ship.
- Experience on other ships; both with this company and other companies.

2 Shipboard organizational structure and processes

- The management/department structure on board the ship.
- The individual's position within the on-board structure; who they work for, who they work with, who they report to and who they assign duties to.
- Normal day-to-day responsibilities, tasks and duties.
- Description of any interaction with personnel ashore.

3 Nature of tasks

- Specifics of the task(s) being undertaken at the time of the occurrence, including location.
- Differences between the task at that time and normal operations.
- Description of the social dynamics of the working environment (e.g. alone/pair/team).
- Understanding of the task.
- Familiarity with the task; last time it was performed, etc.
- Available discretion relating to how the task was to be accomplished.
- Training provided for the task; what was the training.
- Procedures, documents and guidance for the task.
- Equipment used for the task; reliability, previous failures, problems and were the crew familiar with it.
- Physical environment; heat, humidity, noise, confined space, exposure to chemicals, etc.
- Workload and/or effort required for the task:
    - To what extent was it within the crew’s capability at the time.
    - Were there any tasks that were not done because of the workload.
    - Physical effort involved; pushing, pulling, lifting, etc.
    - Mental effort involved; thinking, deciding, calculating, remembering, looking, searching, etc.
    - Time pressure involved; adequacy of time allocated to the task.
    - Use of scaling questions may assist here (e.g. "on a scale of 1 to 10, where 1 is very easy and 10 is extremely difficult, how (physically) difficult was this task ...").

4 Activities prior to occurrence

- Actions and/or activities before coming on watch or reporting for duty.
- Individual's role in the operation being conducted by the ship at the time of the occurrence.
- Individual's location on board at the time of the occurrence.
- What was being observed immediately prior to the occurrence; what was seen, heard, felt, smelled, and thought about.

5 Work period/rest period/recreation pattern

- Description of normal duty schedule (e.g. day worker or watchkeeper).
- Description of duty schedule on the day of the occurrence; on the day before and during the week before the occurrence.
- Length of time awake and/or on duty at the time of the occurrence.
- Overtime worked on the day of the occurrence; on the day before and during the week before the occurrence.
- Usual sleep/rest routine (what time asleep and awake).
- Sleep/rest routine in the three days (72 hours minimum) leading up to the occurrence:
    - 72-hour history of time to bed/time to sleep/duty times/nap times.
    - If there is an indication of reduced sleep beyond 72 hours, collect sleep information beyond 72 hours (as a guide, collect information back to two good nights' rest prior to the occurrence).
    - Quality of sleep; disturbances, light sleep, waking, how refreshed when waking.
    - Time of day when sleep is taken (impact on quality).
    - Last extended period of off-duty time.

6 Living conditions and shipboard environment

- Description of the adequacy of personal facilities; individual, shared or communal; noisy, cramped, vibrations, temperature, ship's motion, etc.
- Availability and consumption of alcohol and/or non-prescribed medications.

7 Physical health

- Symptoms of illness experienced within the 72 hours before the occurrence.
- Medications taken (prescribed, not prescribed).
- Description of the last meal consumed prior to the occurrence; what and when.
- Description of existence and regularity of exercise routine.
- Details of any recent medical examinations, illnesses or injuries.
- Details of any regular or irregular medication, both prescribed and not prescribed.
- Description of quality of vision (e.g. corrective lenses).
- Description of quality of hearing (e.g. hearing aids).
- Name and contact details of personal physician.

8 Mental health

- Length of time spent away from family or loved ones.
- Extreme emotions at any time in the days before the occurrence; e.g. feelings of extreme sadness, anger, worry, fear (use scaling questions (1 to 10) to determine level).
- Important and/or difficult personal decisions made recently; e.g. financial or family worries.
- Recent work performance; any concerns from others.
- Stress and/or difficult situations whilst on board and how these were being managed.
- Difficulties with concentration.
- Any mental health issues recently and/or in the past.
- Medications taken (prescribed, not prescribed).

9 Working relationships

- Friendships and/or support from other crew members.
- Conflicts and/or clashes with other crew members or supervisors.
- Trust in other crew members.
- Language barriers interfering with work performance.
- Clarity of roles and responsibilities with other crew members.

10 Employment conditions

- Contractual arrangements.
- Complaints or industrial action and systems for resolution of these.
- Recent changes to employment conditions.

11 Safety policy

- Awareness of the company's safety policy.
- Ship's procedures for dealing with safety issues; methods of reporting and addressing safety concerns.
- Safety training; type, nature and frequency.
- Emergency drills; type, nature and frequency.
- Personal protective equipment (PPE) provided.
- Records and/or knowledge of personal accidents or injuries prior to the occurrence.

12 Staffing levels

- Sufficiency of staffing/crewing levels on board.
- Appropriate allocation of crew members to duties.
- Changes to normal staffing/crewing levels.

13 Standing orders

- Master's standing orders; for all or part of the crew.
- How are the orders communicated.
- Are the orders in accordance with the company policies.

14 Level of automation and reliability of equipment

- Complexity of machinery and automated systems.
- Training provided for systems.
- Competency of crew in using the systems.
- Reliability of systems; any earlier failures.
- Maintenance of systems.
- Are the systems integrated with each other and with the task requirements.

15 Ship design, motion/cargo characteristics

- Ship design, motion or cargo characteristics; any features which interfere with human performance (e.g. obstructed watchkeeper vision).

SHORESIDE MANAGEMENT ISSUES

16 Management policies and procedures

- Existence of and opinion about the effectiveness of the safety management system, including auditing, analysis, reporting and investigation of the occurrence.
- Existence of and opinion about the effectiveness of risk assessment and management policies and procedures relating to ships, personnel and the environment.
- Existence of and opinion about the effectiveness of the role of the Designated Person Ashore (DPA).

17 Scheduling of work and rest periods

- The company's work schedule, relief policy and risk management policy on fatigue.
- Adherence to these policies.
- Recent changes to these policies.

18 Staffing levels

- The company's policies and practices for determining staffing/crewing levels on board the ship.
- The effectiveness of these policies and practices.

19 Assignment of duties

- The company's policies for determining watchkeeping practices and other duties on board the ship.
- The actual watchkeeping practices.

20 Shore-ship-shore support and communications

- Means and level of support for the ship's master in conduct of operations.
- The master's reporting requirements.

21 Voyage planning and port call schedules

- Policies, procedures and guidelines provided to the master to enable voyage planning.
- Actual practices for voyage planning.

22 Recreational facilities

- The company's policies and practices for the provision of welfare and recreational services on board.

23 Contractual and/or industrial arrangements and agreements

- Contractual arrangements for all crew members.
- Complaints or industrial action in the last year.

24 National/international requirements

- Appropriateness of the applicable international conventions and flag State regulations.
- Effectiveness of the flag State's implementation of the requirements and recommendations of the applicable international conventions.
- Compliance with the requirements and recommendations of the applicable international conventions and flag State regulations.