RIGHTSHIP

Desirable Content of an Incident Investigation Report

This document offers guidance on how to conduct and develop an Incident Investigation report for incidents involving merchant vessels and their crew. The guidelines are applicable to any type of incident or vessel.

Executive Summary

A brief and factual summary of what happened, the consequences, a preview of the key conditions or actions that contributed to the incident (correspondent with Incident Analysis).

Background Information

Description of information that is helpful for the reader to understand the investigation report.

- Location of vessel at the time of the incident and onboard location of incident.
- Relevant vessel details
- Activity/activities that preceded the incident.
- Activity/activities directly related to the incident.
- Applicable policies and procedures.
- Personnel involved, including their experience in rank, ship type experience, time with company, time onboard and history of completing relevant training.
- Equipment associated with the incident.
- Details of person(s) completing the investigation.

Incident Description (Explanation)

Narrative detailing pertinent facts about the incident that describe what happened (and not why).

The intent is to enable the reader to have a good understanding of the relevant events leading up to the incident, the incident and its immediate consequences – the information provided must be free of ambiguity. Typically, this section will be organised chronologically and can be supported with photographs, diagrams or sketches.

- Preamble describing the scene just prior to the incident.
- Narrative description of what happened and consequences.

> Post incident immediate actions.

> Post incident short-term actions.

> Details of anything that went well.

Root Cause Analysis (RCA)

RCA should be conducted utilising an industry-standard methodology to identify Immediate and Root Cause.

Immediate Cause(s) are the direct, observable reason(s) why something happened.

A Root Cause is an underlying, systemic reason that allowed the Immediate Cause(s) to exist or go unaddressed. RCA is the output of the review process that identifies the Root Cause(s) that are linked to the Immediate Cause(s).

For example: an immediate cause might be an unsafe act or condition; the underlying cause would explain why the unsafe act or condition existed; and the root cause often lies in failures of management control or deficiencies within the safety management system.

A variety of recognised RCA techniques may be used, including but not limited to: 5 Whys, Pareto Chart, Fishbone Diagram, Scatter Diagram, Affinity Diagram, Fault Tree Analysis, M-SCAT, and MaRCAT.

It is important to distinguish root causes from underlying (less apparent) causes, which are themselves different from immediate causes. The "domino effect" concept illustrates how a sequence of causal events can lead to an incident; however, disruptions or gaps in this chain—such as sufficient distance or altered direction—may prevent an incident from occurring.

During RCA consideration should be given to Human, Management and Organisational causes.

Human factors such as fatigue, task design, and time constraints must be considered within RCA (see below section on Human Factors).

Effective RCA identifies systemic issues and not just surface-level symptoms. Generic statements such as 'human error' or 'lack of training' should be avoided without further elaboration.

For trend analysis it may be appropriate for a vessel operator to also assign specific categories that relate to RCA.

Further detail in respect to RCA can be found in RightShip's Safety Insights Paper – Root Causes and Preventive Actions.

Incident Analysis

Incident Analysis should include identification of critical factors and a narrative on the findings from the Root Cause Analysis.

> Critical Factors which if eliminated would have prevented the incident.

> Narrative describing actions, omissions, conditions and events that led or contributed to the incident and/or increased its severity.

> Review of similar events on vessel or in the fleet.

Analysis is a repetitive process and does refer to other tasks of the investigation. It is common that during analysis further data is needed and should be collected. Analysis starts with the start of investigation and finishes once the report is competed – after all amendments and updates.

Recommendations

Recommendations should be designed to strengthen risk (prevention and mitigation) barriers or address organisational leadership and cultural findings.

> Recommendations based on all findings from the Incident Analysis.

> Residual risks in the interim before recommendations are fully implemented.

> Measures / Plans in place to monitor effectiveness of Recommendations.

> Fleet Lessons Learnt circular also addressing actual and potential severity and the impact of the incident.

Review and Approval Record

A Review and Approval Record within an incident investigation report is a formal section that documents who reviewed and approved the report, along with their roles and dates of approval. Its purpose is to:

> Ensure accountability by identifying responsible individuals.

> Verify accuracy and completeness of the investigation findings and recommendations.

> Demonstrate compliance with company procedures and regulatory requirements.

> Provide traceability for audits, legal inquiries, and organisational learning.

This record confirms that the report has undergone proper scrutiny and that Recommendations have been validated before implementation.

Supporting Evidence

Applicable supplementary information that is necessary for the reader to understand what happened, the investigation findings and learnings. Material (which can be collated in an appendix) should be pertinent to the report and referenced in the main body of the report and may include (but not be limited to) the following:

- Evidence of Corrective Actions and Preventative Measures
- Fleet Lessons Learnt Circular
- Timeline / Chronology
- Relevant Work Permits & Risk Assessments
- Crew Experience Matrix
- SMS Procedure extracts
- Diagrams/plans
- Photographs
- Chart extracts
- Plans
- Checklists
- Logbook extracts
- Data logger / VDR extracts or playback
- Test and Analysis reports
- Class reports
- Certificates
- Flag notifications & dispensations
- Third Party Service reports
- Planned & Unplanned Maintenance reports and records
- Personnel statements and factual statements
- Interview extracts
- Audit reports
- D&A test results
- Work and rest hour records
- Applicable training records

Note: Incident investigation reports and supporting information should not contain any personal information.

Additional Notes

i)   It is essential that persons involved in conducting incident investigations, developing Incident Investigation reports and reviewing incident investigation reports have the necessary experience and appropriate training in incident investigation and RCA.

ii)   Vessel operators should always consider the use of productivity tools to help with things like maintaining consistency, improving RCA standard, recording closeout for historical reference/data analysis and/or overcoming any language challenges.

Productivity tools can be as simple as having specific drop-down menus within electronic forms or having forms incorporated into an electronic Safety Management System (SMS) but more advanced productivity tools can be used to support the RCA process or suggest Preventative Measures that should be considered. It is however important for any advanced productivity tools to be used in a support function only, with personnel from the vessel operator always involved in the review process and for there to be evidence that Corrective Actions and Preventative Measures have been implemented.

iii)   Responsibility for actions shall always be assigned to specific personnel or onboard positions – This allows for clear accountability, enables effective tracking/follow-up, improves ownership/engagement, reduces the risk of oversight and strengthens collaboration. For the above reasons, assigning responsibility for actions to groups (such as HSEQ, Technical or Vessel) should be avoided.

iv)   Analysis should identify if the incident or root cause(s) are a repeat onboard the vessel or within the operator's fleet.

RightShip Specific:

v)   Where it is clear that incident investigations have been developed with little or no involvement from the vessel's operator they will not be accepted.

Further publicly available reading about requirements.

- ❯ ISM Code Reg. 9
- ❯ MSC-MEPC.7/Circ.7 Guidance on Near-Miss Reporting
- ❯ Resolution A.1075(28) Guidelines to Assist Investigators in the Implementation of the Casualty Investigation Code
- ❯ IMO Res. MSC.255(84) The Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (CIC)
- ❯ MARINE CASUALTY INVESTIGATION Investigators' In-the-field Job Aid by The Marine Accident Investigators' International Forum's (MAIIF's)
- ❯ MAIIF Investigation Manual
- ❯ GUIDANCE NOTES ON THE INVESTIGATION OF MARINE INCIDENTS by ABS
- ❯ Marine Root Cause Analysis Map by ABS (annex to the above)

Human Factors

All good RCA includes analysis of factors which related to human performance, such as:

1. **Equipment Issues**
   - Poor design, malfunction, or lack of usability.
   - Examples: Control panel layout poorly labelled and causing confusion. Supply of poor-quality parts.

2. **Task Design**
   - Complexity, unclear procedures, or unrealistic expectations.
   - Examples: Checklists either too long or too generic. Procedures don't clearly reflect the task.

3. **Familiarity**
   - Lack of experience or recent exposure to the task.
   - Examples: Crew member unfamiliar with updated procedures due to training gaps. Missing handover notes.

4. **Nervousness or Stress**
   - Psychological pressure, anxiety, or performance stress.
   - Examples: Crew under pressure during port operations. Personnel experience heightened emotional anxiety or worry during questioning.

5. **Fatigue**
   - Physical or mental exhaustion due to long hours or poor rest.
   - Examples: Watchkeeper missing checklist items due to sleep deprivation, Crew Hours of Work/Rest showing excessive hours.

6. **Time Constraints**
   - Rushed operations or insufficient time to complete tasks properly.
   - Examples: Pre-departure checks skipped due to tight schedule. Proper tool not used because it takes time to go and get it.

7. **Unawareness of Changed Approach**
   - Not informed of procedural updates or changes in expectations.
   - Examples: Crew unaware of revised ballast handling procedure. New equipment provided without adequate Management of Change.

8. **Leadership and Culture**
   - Influence of onboard leadership, communication, and safety culture.
   - Examples: Lack of encouragement to report near misses. Poor culture of secondary checks by supervisors. Limited shore management engagement.