Designation: F3256 – 23

An American National Standard

Standard Guide for Reporting and Recording of Near-Misses for Maritime Industry[1]

This standard is issued under the fixed designation F3256; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides near-miss reporting criteria and terminology for maritime vessels.

1.2 The purpose of this near-miss reporting guide is to standardize near-miss reporting, including terminology, for the maritime industry.

1.3 The criteria contained within this guide should be applied as a minimum to all near-miss reporting in the maritime industry unless otherwise specified.

1.4 This guide is divided into the following sections and appendixes:

Table of Contents

Sections and Subsections	Title
1	Scope
2	Terminology
3	Significance and Use
4	Near-Miss Standardization
5	Procedure
6	Keywords
Appendix X1	Probability, Severity, and Risk Assessment
Appendix X2	Sample Near-Miss Reporting Form

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *accident, n*—an incident with unexpected or undesirable consequences that may be related to personnel injury or fatality, property loss, environmental impact, business loss, etc., or a combination of these.

2.1.2 *activity/task, n*—an action or job that was being performed during the time of the near-miss, unsafe act/behavior, or hazardous/unsafe condition.

2.1.3 *causal factor, n*—a structural/machinery/equipment/outfitting problem, human factors, or external factors that contributed to an incident, allowed an incident to occur, or allowed the consequences of the incident to be worse than they might have been.

2.1.4 *consequences, n*—the undesirable or unexpected outcomes that may result in negative effects for an organization. These outcomes can range from minor injuries to major events involving loss of life, extensive property loss, environmental damage, and breaches related to security.

2.1.5 *corrective actions, n*—improvements to an organization's processes taken to eliminate causes of hazards, nonconformities, or other undesirable situations.

2.1.6 *event, n*—a happening caused by humans, automatically operating equipment/components, external events or the result of a natural phenomenon.

2.1.6.1 *Discussion*—Event descriptions typically include action verbs such as walked, turned, opened, said, radioed, discovered, decided, saw, etc. If negative (an error, failure or external factor), then the event may also be a causal factor, intermediate cause, or root cause.

2.1.7 *external factors, n*—issues outside the control of the organization. Examples include uncharted/unknown hazards to navigation, some sea or weather conditions, suicides or homicides, and external events.

2.1.8 *hazard, n*—a condition with the potential to cause injury, illness, or death of personnel; damage to or loss of equipment or property; or degradation of voyage/activity/task capabilities.

2.1.9 *hazardous/unsafe condition, n*—any condition that may adversely affect the safety of any seafarer, equipment, vessel, bridge, structure, or shore area or the environmental quality of any port, harbor, or navigable waterway.

2.1.10 *human errors, n*—performance of humans that deviates from the desired performance.

[1] This guide is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.07 on General Requirements.

Current edition approved Jan. 1, 2023. Published January 2023. Originally approved in 2017. Last previous edition approved in 2017 as F3256 – 17. DOI: 10.1520/F3256-23.

2.1.11 *incident, n*—an unplanned sequence of events or conditions, or both, that results in, or could have reasonably resulted in, a loss event.

2.1.12 *incident category, n*—for near-miss reporting the typical categories are near-miss, unsafe act/behavior, or hazardous/unsafe condition.

2.1.13 *incident type, n—for near-miss reporting*, the typical types are near struck near struck by, near struck against, near trapped in, near slip, near trip, near fall (same level or different level), near fire, near spill, near strain/overexertion, near caught between, near contacted by, near contacted with, near exposure, etc.

2.1.14 *injury, n*—damage or harm caused to the structure or function of the human body as a result of an outside physical agent or force.

2.1.15 *intermediate causes, n*—an underlying reason why a causal factor occurred, but it is not deep enough to be a root cause.

2.1.15.1 *Discussion*—Intermediate causes are underlying causes that link causal factors and items-of-note to root causes.

2.1.16 *lagging indicator, n*—measure of a company's safety performance in the form of past incident/accident statistics.

2.1.17 *leading indicator, n*—a measure preceding or indicating a future event used to drive and measure activities carried out to prevent and control incidents/accidents.

2.1.18 *lessons learned, n*—information gained and shared through the study of incidents that serves to help prevent those incidents from occurring in the future.

2.1.19 *loss, n*—human injury, environmental damage, or negative business impact (for example, repair or replacement costs, schedule delays, contract violations, loss of reputation, etc.).

2.1.20 *loss event, n*—undesirable consequences resulting from events or conditions or a combination of these.

2.1.21 *management system, n*—— a methodology devised and put in place by management to encourage desirable behaviors and discourage undesirable behaviors.

2.1.22 *near-miss, n*—a near-miss is a non-loss sequence of events or conditions/acts, or both, that could have resulted in a loss, or in an outcome with more severe consequences than actually occurred. This loss was prevented only by a fortuitous or intentional break in the chain of events or conditions/acts, or both. The potential loss could result from human injury, environmental damage, or negative business impact (for example, repair or replacement costs, scheduling delays, contract violations, loss of reputation, etc.).

2.1.23 *near-miss frequency (NMF), n*—the total number of near-miss cases multiplied by 200 000 (or 1 million), divided by the number of exposure (working) hours over the past year.

2.1.24 *root cause, n*—deficiency of a management system component that allowed the causal factors to occur or exist. Root causes must be within the control of management to address. For a typical causal factor, there are one to four root causes. Root causes are usually as deep as a typical root cause analysis will go in attempting to identify the underlying causes of an incident. Organizational culture issues, which are deeper than root causes, could also be identified and addressed.

2.1.25 *root cause analysis (RCA), n*—an analysis by a person(s), appropriately trained in RCA, that identifies the causal factors, intermediate causes, and root causes of an incident and develops recommendations to address each level of the analysis.

2.1.26 *safeguard, n*—a physical, procedural or administrative control that prevents or mitigates consequences associated with an incident.

2.1.27 *unsafe act/behavior, n*—any act/behavior of a seafarer(s) that may adversely affect the safety of any seafarer, the vessel, the bridge, any structure, shore area, or the environmental quality of any port, harbor, or navigable waterway.

2.2 *Acronyms:*

2.2.1 *IMO*—International Maritime Organization

2.2.2 *ISM*—International Safety Management

3. Significance and Use

3.1 The objective of this guide is to provide near-miss reporting guidance for maritime vessels to promote standardization of near-miss reporting which will allow for better use of the data industrywide.

3.2 *Importance of Near-Miss Reporting:*

3.2.1 Most accidents/incidents are preceded by a chain of events, circumstances, acts, or conditions. If any of these events, circumstances, acts, or conditions had transpired another way, at another time, or had been corrected, the accident/incident may have been avoided. Reporting near-misses can play an important role in learning from mistakes, preventing accidents, and suffering from their serious consequences.

3.3 Near-miss reporting can provide information that can be used to improve most any safety system, often complementing other safety system components such as accident/incident investigations, hazard analyses, safety reporting, prioritizing, root cause analysis, solution identification, communication, identifying corrective actions, sharing lessons learned, leading safety indicator analyses, and safety culture enhancement. In addition, in terms of human life and property damage, near-misses are very low cost learning tools for training, prevention of re-occurrence, and a new data source on what may work to break the chain of events before an accident occurs. Finally, near-misses may provide key data that can prevent low probability-high consequence accidents by providing safer alternatives.

3.4 *Barriers to Near-Miss Reporting:*

3.4.1 It is generally agreed that effective near-miss reporting can reduce hazardous conditions and situations in the workplace, resulting in a reduction in accidents, or at least provide an opportunity for hazard identification and abatement. However, there remain significant challenges and obstacles to implementing near-miss recording/reporting systems. The barriers to near-miss recording/reporting can be related to the employees and management as well as outside influences. The barriers to near-miss recording/reporting can lead to underreporting in the maritime industry. Common near-miss reporting barriers include, but are not limited to: