TSB Recommendation M05-03

Standards for testing rigid and inflatable life rafts

The Transportation Safety Board of Canada recommends that the Department of Transport develop and implement performance-based standards to ensure that all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions and, further, encourage the International Maritime Organization to adopt a parallel approach internationally.

Marine transportation safety investigation report	M03M0077
Date the recommendation was issued	13 September 2005
Date of the latest response	December 2023
Date of the latest assessment	March 2024
Rating of the latest response	Satisfactory in Part
File status	Dormant

Summary of the occurrence

At about 1700 Atlantic daylight time, on 25 June 2003, the fishing vessel *Silent Provider* left Canso, Nova Scotia, in fair weather and visibility, and headed for Petit-de-Grat, Nova Scotia. Approximately one hour later, smoke was seen coming from the engine room doorway. The fixed halon fire smothering system in the engine room was discharged, but did not appear to bring the fire under control. The crew broadcast a Mayday and then deployed the rigid life raft, an Ovatek 4, into the water.

After donning their immersion suits, the two-member crew entered the water and attempted to board the rigid life raft. When the first crew member entered the life raft, a significant amount of water was shipped inside, and the life raft rolled onto its side. Concerned about his safety, the crew member exited the life raft. After several unsuccessful attempts to board and stabilize the craft, the crew decided to remain in the water and use the rigid life raft as a flotation device.

Approximately one hour after abandoning the *Silent Provider*, the two crew members, suffering from mild hypothermia, were rescued by the fishing vessel *Cape Ryan*. The *Silent Provider* later burned to the waterline and sank.

Life rafts are often used under environmental conditions that are substantially more challenging than calm water pool testing. Canadian standards TP 7321 and TP 11342 for testing life rafts, which are derived from IMO standards, call for critical tests such as swamping, righting, stability, and boarding to be done in isolation one from the other and under calm conditions. The investigation revealed that, although the rigid life raft passed individual tests related to stability, swamped condition, boarding, and righting, when used under realistic conditions, the life raft did not function as expected. Although performance-based testing is applied to life rafts in the aviation industry, such a practical demonstration of life raft capability in actual service conditions is not required for life rafts carried on Canadian vessels.

The Board concluded its investigation and released report M03M0077 on 13 September 2005.

Rationale for the recommendation

The Board was concerned that life rafts are being certified without full consideration of realistic service conditions such as boarding or stability with water inside the life raft or boarding while in waves, and that Canadian and international standards for testing and certification of rigid and inflatable life rafts are not sufficiently performance-based, thus placing passengers and crews at undue risk. Therefore, the Board recommended that

> the Department of Transport develop and implement performance-based standards to ensure that all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions and, further, encourage the International Maritime Organization to adopt a parallel approach internationally.
>
> **TSB Recommendation M05-03**

Previous responses and assessments

November 2005: response from Transport Canada

The Minister of Transport notes the recommendation. Transport Canada (TC) will continue to actively work with the International Maritime Organization (IMO) to improve the testing and performance criteria of all survival craft. Currently work at IMO is focused on improving the testing criteria for lifeboats and release mechanisms, as this has been a concern internationally and domestically.

TC is working on improving standards for survival craft in a number of areas:

As noted in the report, TC has presented findings at the Design and Equipment Sub-committee at IMO that indicate that the use of 75Kg as the weight used for test subjects in prototype testing of survival craft is not truly representative of today's seamen. In light of this fact Canada proposed that the mass of an average test subject be increased to 90kg as being more representative of modern anthropometric parameters. TC has subsequently submitted a paper on a related agenda item and will continue to work with other members for changes to the size of test subjects at Fire Protection Sub-Committee in January 2006.

TC has recently carried out testing on lifeboat release mechanisms in an effort to identify weaknesses in the testing protocol. TC will continue to work on improving the international standards for release mechanisms.

TC is planning to carry out research regarding thermal requirements of life rafts. The current IMO standards specify a need for insulated floors and canopies in life rafts without specifying the value of thermal protection required. This research will assist in improving the performance criteria of life rafts.

January 2006: TSB assessment of the response (Satisfactory in Part)

As was noted in the investigation report into this occurrence, survival in emergency situations at sea depends to a large extent on survival equipment performing as intended. Consequently, it is essential that the standards for testing life rafts–rigid or inflatable–measure performance in relation to anticipated use and, ideally, under actual service conditions. Presently, this is not the case. The Board's recommendation therefore called on TC to not only develop and implement performance-based standards to ensure that all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions, but to encourage IMO to adopt a parallel approach.

Other than those actions concerning life raft standards already noted in the investigation report, the response by TC indicated that the department is planning to carry out research regarding thermal requirements. There is no indication in the response of any other domestic initiative under consideration or being taken regarding life raft-related testing and performance criteria for operating in more severe marine conditions.

Although there is no indication in the response by TC that, internationally, improvements in the life raft-related testing and performance criteria are being addressed, TC is working at the international level through IMO to further improve the testing and performance criteria of survival equipment. The development of goal or performance-based standards is well underway within IMO in addressing a variety of maritime matters, such as lifejackets, evacuation guidance systems, voyage data recorders and ship construction. Furthermore, a correspondence group of the IMO Sub-Committee on Ship Design and Equipment (48th session, 21-25 February 2006) will be expected to prepare performance requirements for survival craft used on future passenger ships.

The response is considered **Satisfactory in Part**.

November 2006: response from Transport Canada

TC's update, dated November 2006, indicated it will continue to work with the IMO to improve the testing and performance criteria of all survival equipment. TC is working on improving standards for survival craft in a number of areas, including: proposed to IMO that the mass of an average test subject be increased to 90 kg; continue to work with other members for changes to the size of test subjects at the Fire Protection Sub-Committee in January 2006; continue to work on improving the international standards for release mechanisms for lifeboats; to carry out

research regarding thermal requirements of life rafts. The current IMO standards specify a need for insulated floors and canopies in life rafts without specifying the value of thermal protection required.

November 2006: TSB assessment of the response (Satisfactory in Part)

TC's update provided no information to indicate that improvements in the life raft-related testing and performance criteria are being addressed to ensure that life rafts deployed on Canadian vessels are capable of operating in actual service conditions. However, TC is working internationally to further improve performance testing and approval standards of survival equipment: including measures to prevent accidents with lifeboats, compatibility of life-saving appliances and test standards for extended service intervals of inflatable life rafts.

Therefore, the assessment remains **Satisfactory in Part**.

June 2008: response from Transport Canada

TC's update, dated June 2008, indicated that TC is working on improving standards for survival craft in a number of areas, including a proposal to IMO that the mass of an average test subject be increased to 90 kg; work continues with other members for changes to the size of test subjects at the Fire Protection Sub-Committee; work continues to improve the international standards for release mechanisms for lifeboats; to carry out research regarding thermal requirements of life rafts.

The current IMO standards specify a need for insulated floors and canopies in life rafts without specifying the value of thermal protection required.

TC is currently engaged in scientific data collection regarding the thermal performance requirements for life rafts. Following this data collection TC will address current shortcomings in *Life Saving Equipment Regulations* and at IMO.

September 2008: TSB assessment of the response (Satisfactory in Part)

No substantial change to address the safety deficiency since the last assessment.

Therefore, the assessment of the response remains at **Satisfactory in Part**.

March 2010: response from Transport Canada

TC's update, dated March 2010, indicated that it is working on improving standards for survival craft in a number of areas, including a proposal to the Fire Protection Sub-Committee at the IMO that the mass of an average test subject be increased to 90 kg. Work also continues to improve the international standards for release mechanisms for lifeboats as well as to carry out research and data collection regarding thermal performance requirements of life rafts. Following this data collection, Transport Canada will address current shortcomings in the regulatory regime, as well as at the International Maritime Organization, as the current International Maritime

Organization standards specify a need for insulated floors and canopies in life rafts without specifying the value of thermal protection required.

March 2010: TSB assessment of the response (Satisfactory in Part)

Work continues on improving standards for survival craft in a number of areas, including a proposal to the Fire Protection Sub-Committee at the IMO that the mass of an average test subject be increased to 90 kg. Work also continues to improve the international standards for release mechanisms for lifeboats as well as to carry out research and data collection regarding thermal performance requirements of life rafts. Following this data collection, Transport Canada will address current domestic and international shortcomings regarding standards that do not specify the value of thermal protection for insulated floors and canopies in life rafts.

Therefore, the assessment of the response remains **Satisfactory in Part**.

December 2010: response from Transport Canada

TC's update in December 2010 indicated that it has submitted a proposal to the Fire Protection Sub-Committee at the International Maritime Organization that the mass of an average test subject be increased to 90 kg. Work also continues to improve the international standards for release mechanisms for lifeboats as well as to carry out research and data collection regarding thermal performance requirements of life rafts. Following this data collection, TC will address current shortcomings in the regulatory regime, as well as at the International Maritime Organization, as the current International Maritime Organization standards specify a need for insulated floors and canopies in life rafts without specifying the value of thermal protection required.

March 2011: TSB assessment of the response (Satisfactory in Part)

As this initiative is ongoing, and there has been no substantial change to address the safety deficiency since the last assessment, the assessment of the response remains **Satisfactory in Part**.

December 2011: response from Transport Canada

Transport Canada is using international standards and continues to work at the IMO level to improve the performance of life-saving equipment including survival crafts.

The manufacturer of the life raft in question (*Ovatek*) has taken steps to reduce the likelihood of similar incidents occurring. Following the incident, TC and the manufacturer conducted tests with successful results, the TSB report refers to the actions taken by the manufacturer regarding familiarization with this type of life raft, including an updated user manual and other safety information.

Recent changes resulting from IMO work include increasing the weight of persons for survival craft testing. This was adopted following a paper submitted by Canada. Other improvements for

the performance of life rafts include changes to the standard for inflation system, improved requirement for boarding ramps, among others.

As for life raft performance in general there are currently no plans at the International level for further development of testing for lack of evidence of operational issues in severe marine conditions.

March 2012: TSB assessment of the response (Satisfactory in Part)

Transport Canada's response addresses one specific type of rigid life raft, whereas the recommendation refers to the development and implementation of performance based standards for all life rafts. TSB acknowledges the various improvements to the existing standards (including increasing the subject test weights) but there was no indication that the standards would be performance based.

TC indicated that there is no evidence that there are operational issues with life raft deployment in severe marine conditions. However, TC agreed to review the occurrences originally cited in the TSB report M03M0077; *Estonia* (1994), *Hili-Kum* (1995), and *Sleipner* (1999).

Notwithstanding, TC has indicated that it does not intend to take further action at the international level on this recommendation. There has been no substantial change to address the safety deficiency posed by life rafts that are not performance tested and there is no evidence that TC intends to undertake further initiatives in this regard; therefore, the assessment of the response remains **Satisfactory in Part**.

December 2012: response from Transport Canada

Transport Canada believes that this recommendation has been met by way of the following actions:

1. All life rafts for use on Canadian vessels must meet the criteria listed in Schedule VIII of the *Life Saving Equipment Regulations*. Among the criteria is a weather test prescribed in Subsection 1(1) which reads "Every life raft shall be constructed so as to be capable of withstanding exposure for 30 days afloat in any sea condition." This condition has been adopted from the LSA Code Chapter IV Section 4.1.1.1.
2. The manufacturer of the life raft in question has taken steps to reduce the likelihood of similar incidents occurring. Following the incident, TC and the manufacturer conducted tests with successful results; the TSB report refers to the actions taken by the manufacturer regarding familiarization with this type of life raft, including an updated user manual and other safety information.
3. Changes resulting from IMO work include increasing in the weight of persons for survival craft testing. This was adopted following a paper submitted by Canada (copy attached). Other improvements for the performance of life rafts include changes to the standard for inflation system, improved requirement for boarding ramps, among others.

4. Currently, there is an ongoing effort to improve life raft performance through the IMO's *Goal-Based Guidelines on Framework of Requirements for Ships' Life-saving Appliances* referenced in Section 6 of the Sub-committee on Ship Design and Equipment's Report to the Maritime Safety Committee (DE 56/25) dated 28 February 2012. For example Annex 2 of the Goal-based Guidelines mentions: *5.1.3* The six categories for functional requirements will be as follows: 3 Performance means required functions for respective systems under adverse environmental conditions expected to be encountered by the ship at sea.

Transport Canada will continue to work at the IMO level to improve the performance of life-saving equipment including survival crafts.

March 2013: TSB assessment of the response (Satisfactory in Part)

Transport Canada's response indicates that it has gauged the international community and supports the IMO initiative to improve life raft performance. Despite the life raft weather test required in the *Life Saving Equipment Regulations,* there have been no further TC initiatives to develop or implement performance-based standards. Therefore, the assessment of the response remains **Satisfactory in Part**.

April 2018: response from Transport Canada

The International Maritime Organization's Ship Systems and Equipment (SSE) sub-committee is currently engaged in the development of goals, functional requirements and expected performance criteria for SOLAS Chapter III life-saving appliances and arrangements. Once the expected performance requirements for survival craft have been determined, Transport Canada will confer with other member states and evaluate if there is a further need to review the expected performance standards with regards to severe marine conditions.

June 2018: TSB assessment of the response (Satisfactory Intent)

Transport Canada's response indicates that after the IMO has developed various criteria to improve the survival craft performance requirements, it will confer with other member states and evaluate if there is a further need to review the expected performance standards with regards to severe marine conditions.

Therefore, the Board considers the response to the recommendation to show **Satisfactory Intent**.

January 2019: response from Transport Canada

Transport Canada agrees in principle with the recommendation. The next International Maritime Organization's Ship System and Equipment (SSE) sub-committee is taking place in March 2019 where new requirements on survival craft and consequential work related to the Polar Code will be discussed. While focused on the Arctic and Antarctic, these are nonetheless considered severe marine conditions and can also be used to inform the development of standards/guidelines in non-Polar Regions.

Transport Canada will continue to promote performance-based standards that are capable of operating in severe marine conditions at the IMO level. Though a delay is possible, the performance requirements for survival craft are expected to be determined at the March 2019 meeting, after which Transport Canada will confer with other member states and evaluate if there is a further need for review.

On 27 March 2019, TC updated its response with the following information:

The International Maritime Organization's Ship Systems and Equipment (SSE) sub-committee finalized the development of goals, functional requirements and expected performance criteria for SOLAS Chapter III life-saving appliances and arrangements at the meeting held on March 8, 2019. These criteria will be sent to the 101st session of the Maritime Safety Committee (MSC) for approval (June 2019). The expected performance criteria which have been agreed upon, address various aspects of boarding and stability in severe marine conditions, including that:

- All life-saving appliances should be usable and operational under adverse vessel conditions;
- Means should be available to embark survival craft from both the embarkation deck and the waterline in the lightest seagoing condition and under adverse conditions of list and trim;
- Embarkation platforms should provide for protection from the seaway;
- Relative movement and gaps between the survival craft and ship during embarkation should be minimized;
- All life-saving appliances should enable safe abandonment of all persons on board regardless of their physical condition, age and mobility, including those needing evacuation by stretcher or other means;
- All ships should provide for safe launching of survival craft both in a seaway and when the ship is adrift.

May 2019: TSB assessment of the response (Satisfactory Intent)

Transport Canada's (TC) response indicates that the IMO has discussed various criteria to improve the survival craft performance requirements, including new requirements on survival craft and consequential work related to the Polar Code in March 2019. In June 2019, these criteria will be sent to the IMO Maritime Safety Committee for approval.

The Board considers the response to Recommendation M05-03 to show **Satisfactory Intent**.

January 2020: response from Transport Canada

Transport Canada (TC) agrees with this recommendation. The Marine Safety Committee (MSC), at its 101st session, approved MSC.1/Circ.1212/Rev.1 on "Revised guidelines on alternative design and arrangements for SOLAS chapters II-1 and III," and invited Member States implementing the revised guidelines to provide the International Maritime Organization (IMO) with feedback on the experience gained with their application.

The Committee also approved MSC.1/Circ.1614 on "Interim guidelines on life-saving appliances and arrangements for ships operating in polar waters."

TC is monitoring experiences gained with the application of the guidelines at the IMO.

March 2020: TSB assessment of the response (Satisfactory in Part)

TC's response indicates that it is monitoring the experiences gained with the application of IMO's MSC.1/Circ.1212/Rev.1 on "Revised guidelines on alternative design and arrangements for SOLAS chapters II-1 and III" and MSC.1/Circ.1614 on "Interim guidelines on life-saving appliances and arrangements for ships operating in polar waters."

However, there is no indication in the response of any further TC initiatives to develop or implement performance-based standards to ensure all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions.

The Board considers the response to the recommendation to be **Satisfactory in Part**.

February 2021: response from Transport Canada

Transport Canada agrees with the recommendation. Transport Canada continues to work on the development and implementation of performance based standards through the International Maritime Organization (IMO).

The Marine Safety Committee (MSC), at its 97th session, decided that the work on the requirements regarding the ventilation on board survival crafts had to be considered prior to undertaking a review of SOLAS III and the Life-Saving Appliance Code (LSA Code). Now that these developments are nearing completion, it is expected that the work on life-saving appliances will further advance. Canada will continue its active participation to ensure that cold climate precautions are taken into account as the work progresses.

Transport Canada will also be monitoring the experiences gained by Member States on the application of the *Revised guidelines on alternative design and arrangements for SOLAS chapters II-1 and III.* The Goals and Functional Requirements for "Alternative design and arrangements" are outlined in these guidelines and have been drafted in a performance-based manner, meaning that life-saving appliances must perform as expected in all operating conditions.

Now that the Goals and Functional Requirements for SOLAS III/38 "Alternative design and arrangements" have been set, they will be used as the basis to undertake the official review of SOLAS chapter III and the Life-Saving Appliance Code. The first step identified at SSE 7 was to develop the *Action plan on the revision of SOLAS chapter III* and the Life-Saving Appliance Code which was endorsed at Marine Safety Committee's 102 session. Considerations under this item include the identification of gaps, inconsistencies and ambiguities in SOLAS III and the Life-Saving Appliance Code. A hazard identification process has begun under the correspondence group to which Transport Canada is actively participating.

March 2021: TSB assessment of the response (Satisfactory in Part)

Transport Canada's (TC) response indicates that the department continues to work with the IMO to develop and implement performance-based standards. TC also indicates that it will continue actively participating in the review of SOLAS III and the LSA Code to ensure that cold climate precautions are taken into account.

The Board is encouraged by TC's continued work at the IMO to advance cold climate precautions and performance-based standards. Since this recommendation was issued, TC has changed the way standards are developed, with a move towards incorporation by reference of IMO and other third-party documents, as amended from time to time. Accordingly, changes made to Chapter III of SOLAS will be automatically included in the Canadian Life Saving Appliance Standard, TP 14475, once ratified. However, given that the IMO is currently assessing potential changes to Chapter III of SOLAS, it will be several years before new testing standards are implemented. In the interim, the risk remains and the Board believes that there would be safety gains if TC develops and implements performance-based standards to ensure that all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions.

Therefore, the Board considers the response to Recommendation M05-03 to be **Satisfactory in Part**.

December 2021: response from Transport Canada

The update provided by TC in February 2021 is still accurate since the sub-committee in charge of this work did not convene since and therefore no advancements were made.

March 2022: TSB assessment of the response (Satisfactory in Part)

Transport Canada (TC) indicates that the sub-committee did not meet in 2021, resulting in no advancements on Chapter III of SOLAS and the Life-Saving Appliance (LSA) Code. Although the TSB expects that this work will continue, the Board still believes there would be additional safety gains if TC were to develop and implement its own performance-based standards to ensure that all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions.

The Board considers the response to Recommendation M05-03 to remain **Satisfactory in Part**.

December 2022: response from Transport Canada

The proposed *Vessel Construction and Equipment Regulations* (VCER) are currently in pre-publication in the Canada Gazette, Part I. The VCER would incorporate by reference the LSA Code, as well as a revised version of the *Canadian Life Saving Appliance Standard* - TP 14475, which is and will continue to be incorporated by reference in the *Fishing Vessel Safety Regulations.* The revised version of TP 14475 will specify Canadian modifications to the LSA

Code, requirements for Canadian (non-SOLAS) life-saving appliances, as well as the testing requirements for the Canadian (non-SOLAS) life-saving appliances.[1]

As a member of the International Maritime Organization (IMO), Transport Canada continues to work with other IMO Member States on marine safety and security issues, including those pertaining to liferafts.

In response to a request by the TSB for further information, TC sent the following information on 02 February 2023: Transport Canada is of the view that some testing requirements are already in place (IMO Resolution MSC.81(70), paragraph 5.19) and reflected in the *Canadian Life Saving Appliance Standard - TP 14475 E* (canada.ca).[2] The work on the revision of SOLAS Chapter III and the LSA Code is ongoing at the IMO. Work is currently focusing on the identification of hazards, in this context. Testing of LSA in non-realistic service conditions has been identified as a potential cause related to the performance of the survival craft in the performance/ergonomics/safety category (SSE 8/3 annex 4), hazard related to embarkation and persons in the water have also been identified. While performance-based standards are not the current focus of the revisions to SOLAS Chapter III and the LSA Code at the IMO, Transport Canada will continue to advocate for performance-based standards for life rafts operating in severe weather conditions when the opportunity presents itself, as it continues to work with other IMO Member States on the revision of SOLAS Chapter III and the LSA Code.

March 2023: TSB assessment of the response (Satisfactory in Part)

Transport Canada's (TC) response indicates that the proposed *Vessel Construction and Equipment Regulations* (VCER), pre-published in the *Canada Gazette*, Part I in October 2022, would incorporate by reference the International Life-Saving Appliance (LSA) Code and a revised version of the Canadian Life Saving Appliance Standard - TP 14475, which is and will continue to be incorporated by reference in the *Fishing Vessel Safety Regulations*. The revised version of TP 14475 will specify Canadian modifications to the LSA Code, requirements for Canadian (non-SOLAS) life-saving appliances, as well as the testing requirements for the Canadian (non-SOLAS) life-saving appliances.

TC also indicated that it is collaborating with the IMO on work that includes cold climate precautions and performance-based standards, and on publications regarding LSA requirements. IMO Member States are currently revising SOLAS Chapter III and the LSA Code, though performance-based standards are not the current focus of the revisions. TC also points out that there currently are some testing requirements in place in the IMO Resolution MSC.81(70) and in the *Canadian Life Saving Appliance Standard* - TP 14475 E.

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1 Responses are those of the stakeholders to the TSB in written communications and are reproduced in full. The TSB corrects typographical errors and accessibility issues in the material it reproduces without indication but uses brackets [ ] to show other changes or to show that part of the response was omitted because it was not pertinent.

2 https://tc.canada.ca/en/marine-transportation/marine-safety/canadian-life-saving-appliance-standard-tp-14475-e

While the Board continues to be encouraged by the upcoming publication of the revised VCER, the Board still believes there would be additional safety gains if TC were to develop and implement its own performance-based standards to ensure that all life rafts deployed on Canadian vessels are capable of operating in severe marine conditions. Furthermore, although SOLAS Chapter III and the LSA Code are currently in review at the IMO, the Board is concerned it could be several years before new international testing standards are implemented.

The Board considers the response to Recommendation M05-03 to remain **Satisfactory in Part**.

Latest response and assessment

December 2023: response from Transport Canada

The proposed *Vessel Construction and Equipment Regulations*, which incorporate by reference the *International Life-Saving Appliance Code* [LSA Code] and a revised version of the Canadian Life Saving Appliance Standard – TP 14475, will be published in the *Canada Gazette*, Part II in late 2023. The requirements laid down in Chapter III of the International Convention on the Safety of Life at Sea (SOLAS) and the LSA Code are the best approach to effectively address performance-based standards for the operation of life-saving appliances in severe weather conditions. These are based on the extensive input from across maritime safety administrations and their experts, as well as practical experience.

Going forward, Transport Canada will continue its work with other IMO Member States to further the development of safety standards with respect to life saving appliances, including those pertaining to life rafts. TC notes that IMO's Working Group on Revision of SOLAS Chapter III and the LSA Code met in March 2023 during the 9th session of the Sub-Committee on Ship Systems and Equipment, and again in October 2023 intersessionally to advance its workplan.

March 2024: TSB assessment of the response (Satisfactory in Part)

The *Vessel Construction and Equipment Regulations* (VCER), which incorporate by reference the *International Life-Saving Appliance Code* (LSA Code) and a revised version of the Canadian Life Saving Appliance Standard – TP 14475, were published in December 2023. The response from Transport Canada (TC) indicates that, based on input from maritime safety administrations and experts, the requirements in Chapter III of the International Convention on the Safety of Life at Sea (SOLAS) and the LSA Code are the best approach to address performance-based standards of life saving appliance operations in severe weather conditions. TC also committed to continue to work with IMO Member States to develop further safety standards for life saving appliances.

The Board acknowledges TC’s publication of the VCER and its continued advocacy for performance-based standards for life rafts and other life saving appliances. However, the Board also notes that the requirements of the LSA Code do not include performance-based testing for life rafts. The Board therefore considers the response to Recommendation M05-03 to be **Satisfactory in Part**.

File status

The recent publication of the VCER, which incorporate the LSA Code and TP 14475 by reference, does not include requirements for performance-based testing for life rafts. As a result, the Board has determined that continued reassessments of Recommendation M05-03 is unlikely to yield further results. The Board will continue to monitor domestic and international activity with respect to the risk associated with the safety deficiency associated with this recommendation.

This deficiency file is **Dormant**.