



Luxembourg, 4 April 2022

SAFETY RECOMMENDATION LU-MA-SR/2022-001

1. Context

The ongoing investigation of the fatal occupational accident on board the *Willem De Vlamingh* on 9 October 2021, involving a Power Operated Sliding Watertight Door (POS-WTD), has highlighted a safety issue that requires an immediate safety action. In accordance with the provisions laid down in Art. 9., paragraph 2, of the national amended law dated 30 April 2008 establishing the Administration of technical investigations (AET), safety recommendations may be issued at any time during the investigation, when such an action is deemed necessary.

2. Description

On the 9 October, on board the *Willem De Vlamingh*, a multipurpose and support vessel, berthed in the Port of Anping (Taiwan) a crew member was found trapped in a POS-WTD at around 17:30 (Local Time). The crew member was brought ashore and was pronounced deceased at a local hospital.

In 2018, the AET published the final report¹ on a similar fatal accident on a vessel of the same operator involving a POS-WTD and issued two safety recommendations² to operate the remote control stations for power operated watertight doors in accordance with SOLAS Regulations II-1/13.8.1³. The recent event shows that the above-mentioned recommendations have not been implemented and that an additional life was lost while operating usually in “doors-closed” mode on a cargo vessel.

For passenger ships, SOLAS Regulation II-1/13.8.1 states: *“The “doors closed” mode shall permit doors to be opened locally and shall automatically re-close the doors upon release of the local control mechanism. The “master mode” switch shall normally be in the “local control” mode. The “doors closed” mode shall only be used in an emergency or for testing purposes.”* Furthermore, SOLAS Regulation II-1/13.5.1 states that *“Watertight doors, ..., shall be power-operated sliding doors complying with the requirements of paragraph 7 capable of being closed simultaneously from the central operating console at the navigation bridge in not more than 60 s with the ship in the upright position”*. For cargo ships, the IMO Maritime Safety Committee (MSC) issued circular 1176, which states under paragraph 8.3.3.2.: *“Where it is necessary to start the power unit for operation of the watertight door, means to start the power unit is also to be provided at remote control stations. The operation of such remote control should be in accordance with”* amended SOLAS regulations II-1/13.8.1 to 13.8.3⁴. Accordingly, while the use of “local control” mode is a standard on passenger ships, it is only

¹ [FINAL REPORT: FATAL ACCIDENT ON BOARD IBN BATTUTA ON 29 SEPTEMBER 2011](#)

² LU-MA-2018-001 and LU-MA-2018-002, both addressed to the Luxembourg Maritime Administration

³ SOLAS 2018 consolidated edition

⁴ Formerly regulations II-1/15.8.1 to 15.8.3 in SOLAS 2004 consolidated edition.

a recommendation on cargo ships. The *Willem De Vlamingh* falls under the IMO provisions of cargo ships.

The operator's point of view is that in case of a collision in areas with high traffic density or a grounding with subsequent flooding in coastal areas with shallow waters, "local control" mode could "*possibly result in a loss of time for closing the doors and consequently lead to major water damage, loss of stability, injuries/ fatalities among crew members, etc*". It is assumed that usually operating in "doors closed" mode reduces the risk of POS-WTDs to remain open by eliminating the need of human intervention to operate the closing sequence. The use of "doors closed" mode further eliminates the need on the bridge to switch the operating mode in case of an emergency, thus excluding another potential human performance aspect.

A trade-off, to usually operate in "doors closed" mode is the exposure of the crew members to a potential risk on every passage of a POS-WTD. This decision, taken at highest management level, can also be seen as a transfer of responsibility from the bridge (in case of an emergency) to the crew member operating the door (on a daily basis). Once the closing of the door has been remotely triggered, it can only be reverted by appropriate use of the local control handle. The installed POS-WTDs have no safety guards to detect a potential object or obstacle obstructing the door opening and to eventually stop the door from closing.

The AET would like to stress that the operation in "local control" mode, with a related procedure to ensure the closure of the doors after passage and adequate supervision to assure the proper implementation of the procedure, should not have adverse effects on vessel safety. It is also important to note that the regulatory provisions related to the "doors closed" mode have been set out in the primary context of an emergency and not for usual operation. On that basis, even when compliant with SOLAS provisions it cannot be assumed that the potential risks of usual operation in "doors closed" mode and eventual mitigation measures to control these risks have been addressed by the regulation. **The availability of a "doors closed" mode on the central operating console should hence not encourage its use beyond the intended primary scenario of an emergency.**

The AET remains committed to the safety recommendations LU-MA-2018-001 and LU-MA-2018-002 addressed to the Luxembourg Maritime Administration, which aim to extend to cargo vessels the mandatory operation of the remote control stations for power operated watertight doors in accordance with SOLAS Regulations II-1/13.8.1 and which would have prevented the fatal occupational accident on board the *Willem De Vlamingh* without compromising the safety of the vessel.

However, knowing that these recommendations have not yet produced their intended effect and might not do so in future, it is essential for the AET, in cooperation with the operators, the classification societies and the maritime administration, to work on additional actions to mitigate the known risk related to the usual operation of POS-WTDs in "doors closed" mode and thereby improve safety.

Best practices regarding the local operation of power operated watertight doors in "doors closed" mode usually specify that the crew should avoid passing through a moving door and that the passage should only be done when the door is completely open. Although this procedure seems to be reasonable and safe, the day-to-day operation on vessels show that the implementation of such a procedure may prove to be difficult because the human limitations and the operational constraints that the crew is exposed to on a daily basis are not necessarily taken into account. Applying the procedure could take up a considerable time on each door passage - precious time for a work-oriented crew in a dynamic work environment. Furthermore, inadequate supervision and the lack of corrective actions in case of procedure

violations may be perceived by the crew as though their conduct would be implicitly tolerated by their hierarchy.

While reviewing the above events and other similar non-fatal occurrences, a potential safety hazard was identified each time when a POS-WTD is starting the closing cycle from an intermediate position⁵. As identified in the final report published in 2018, crew members passing POS-WTDs are likely to have a tendency to open the doors by only as much as to allow the quick passage of the doorway. This behavior leaves only a narrow safety margin in case of a mishap during the door passage, when the door remotely starts the closing cycle.

This latent unsafe condition on vessels operating the POS-WTDs usually in “doors closed” mode led to the issuance of the present safety recommendation.

3. Objective

When operating a vessel in “doors closed” mode, the risk of crew members getting trapped in a POS-WTD during remote closure from an intermediate position could be reduced by cycling the door first to the full-open position before starting the closing cycle. This would prevent the immediate remote closure of a POS-WTD from an intermediate position, thus providing an increased safety margin to personnel passing the POS-WTD.

A preliminary assessment by the AET and the operator of this proposed action on the *Willem De Vlamingh* concluded that an implementation could be done in accordance with SOLAS Regulations⁶. In order to have the draft safety recommendation evaluated in regard to the conformity with prevailing regulations and possible negative effects on vessel safety, the AET sent it to the Luxembourg Maritime Authority, who forwarded it to several classification societies. In their responses, three classification societies did not raise any safety relevant adverse effects which would prevent an implementation of the draft safety recommendation, one classification society evaluated the draft safety recommendation as part of a possible solution and another one found it “technically sound and feasible”. Finally, one classification society was reluctant to support the draft safety recommendation, stating that from a stability perspective, the rapid closure of watertight doors would be of vital importance in case of a flooding scenario. The AET believes that the positive effects of the present safety recommendation outweigh the possible negative effects, while enabling an implementation in accordance with SOLAS provisions⁶ for POS-WTDs.

4. Safety recommendation

The rationale behind the present safety recommendation is that adapting an engineered defense to account for the human behavior should prove to be more effective than trying to adapt the human behavior to a non-appropriate operating mode. Therefore, the

AET recommends to the Luxembourg Maritime Administration:

- **To promote, on all cargo vessels registered on the Luxembourg Merchant Fleet register equipped with Power Operated Sliding Watertight Doors and not operating the remote control stations for power operated watertight doors in accordance with SOLAS Regulations II-1/13.8.1, the implementation of an operational change to Power Operated Sliding Watertight Doors to prevent the remote activation of the closure cycle from an intermediate position, by cycling the door first to the full-open position before closing it.**

⁵ In this context, intermediate position means that the door is neither in closed position, nor in fully open position.

⁶ SOLAS Regulation II-1/13 - Openings in watertight bulkheads below the bulkhead deck in passenger ships