

## **Investigation Report No. 103/21**

**Date: 22 September 2022**

**Serious marine casualty**

**Personnel Accident with Subsequent Loss of Life on board the Container Ship SEOUL EXPRESS at Sea between Manzanillo and Long Beach on 27 March 2021**

### **1 Summary**

At about 0800 on 27 March 2021<sup>1</sup>, a crew member of the German-flagged container vessel SEOUL EXPRESS fell from a vertical cargo hold ladder in cargo hold no. 3 and lost his life. The casualty was carrying out the required daily inspection of dangerous goods container temperatures alone at the end of his morning watch when the accident happened. Using a handheld radio, he contacted the officer on watch upon entering and leaving each cargo hold in accordance with the standard operating procedures. Due to the absence of a report, the chief mate initiated a search and the casualty was quickly found on a cargo hold's intermediate deck. The casualty was evacuated from the cargo hold without delay after it was established that he had to be resuscitated. However, all subsequent attempts to resuscitate were unsuccessful.

It was not possible to determine the exact cause of the fall due to a lack of witnesses or other evidence. Although various underlying conditions could be ruled out as causes or contributing factors, various aspects were identified as potential contributing factors that had already been identified as such in similar accidents.

Room for improvement was found in the areas of occupational safety, shipbuilding, emergency response management, safety culture, as well as occupational safety instructions and procedural instructions. Safety recommendations were addressed to the Federal Ministries for Digital and Transport and of Labour and Social Affairs, the ship operator of the SEOUL EXPRESS, the Ship Safety and Prevention Divisions of BG Verkehr and DNV as the ship's classification society.

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<sup>1</sup> Unless otherwise indicated, all times shown in this report are UTC -6 hours and correspond to ship time when the accident happened.

## **2 Safety Recommendations**

The following safety recommendations do not constitute a presumption of blame or liability in respect of type, number or sequence.

### **2.1 Federal Ministry for Digital and Transport (BMDV)**

#### **2.1.1 Proposals to the IMO**

The Federal Bureau of Maritime Casualty Investigation recommends that in its capacity as flag state representative, the Federal Ministry for Digital and Transport, in cooperation with other interested States and organisations, propose the following to the IMO:

- .1 Introduction of the mandatory installation of safe companionways through vertical passageways, e.g. by stairways or inclined ladders with handrails instead of long vertical ladders, in cargo holds of new container ships which need to be regularly accessed e.g. for cargo care/inspection but also by dock workers;
- .2 adoption of regulations for new cargo ships on increased dimensioning for hatches, companionways, passageways and other routes on board to ensure and take into account the safe and smooth emergency transport of casualties using standard stretchers;
- .3 revision of the Resolution A.1050(27) – Recommendations for Entering Enclosed Spaces aboard Ships, taking into account the risk of falling from a greater height and its particular implications in confined/dangerous spaces in the process.

#### **2.1.2 Special Rescue Appliances on Board Ships**

The Federal Bureau of Maritime Casualty Investigation recommends that in its capacity as the German flag state administration's technical supervision body, the Federal Ministry for Digital and Transport enquire with the operators of ships flying the German Flag, how SOLAS III/19.3.6 and, in particular, the requirements for equipment for efficient rescue of casualties from confined/dangerous spaces are met. The experiences with such equipment, especially with rescue equipment designed for the industry, should be shared and evaluated in order to advance the use of such equipment also on an international level.

### **2.2 Federal Ministry for Digital and Transport (BMDV) and BG Verkehr, Ship Safety Division**

The Federal Bureau of Maritime Casualty Investigation recommends that the Federal Ministry for Digital and Transport and the Ship Safety Division of BG Verkehr, in cooperation with other interested states, propose to the Paris MoU Advisory Board the topic "Occupational Safety - Hazards from Falls from Heights" for upcoming Concentrated Inspection Campaigns within the framework of Port State Control.

### **2.3 Federal Ministry for Digital and Transport (BMDV) and Federal Ministry of Labour and Social Affairs (BMAS)**

The Federal Bureau of Maritime Casualty Investigation recommends that the Federal Ministries of Digital and Transport and of Labour and Social Affairs, in cooperation with the Standardisation Body for Ship and Marine Technology of the German Institute for Standardisation, develop proposals for an international standardisation of personal protective equipment against falls from a height in the maritime sector in order to realise compatibility of the equipment of different manufacturers with permanently installed guides for travelling fall arresters (e.g. on vertical ladders)

### **2.4 Ship Operator of the SEOUL EXPRESS**

The Federal Bureau of Maritime Casualty Investigation recommends that the ship operator of the SEOUL EXPRESS, Hapag-Lloyd AG,

- .1 consider the risk of falling from a greater height in the risk assessment and permit to work for confined/dangerous spaces and the risk assessment for the use of ladders, with a view to establishing appropriate risk control measures;
- .2 reduce the risk of falling from a height on hold ladders of existing ships by means of organisational and behavioural protective measures, the provision and use of personal protective equipment and/or the use of technical innovations;
- .3 ensure that hold ladders are designed in accordance with the mandatory requirements of Section 21 of DGUV Regulation 84 and that all requirements are met;
- .4 mark confined/enclosed and dangerous spaces with warning signs in accordance with EU Directive 92/58/EEC;
- .5 on the German-flagged ships in its fleet, provide only lifesaving appliances that are specified according to the current 'State of medical knowledge in maritime shipping', as notified by the BMDV, and consult the Maritime Medical Service of the Ship Safety Division (BG Verkehr) and the Committee for medical equipment in the maritime shipping sector with regard to additional medical equipment;
- .6 consider providing its crews with special rescue appliances for rescuing casualties from confined/dangerous spaces, which are designed for the industry and adapted to the particular conditions on board.
- .7 instruct their ship's commands on the occasion of the present marine casualty to
  - .1 ensure that the VDR's emergency storage is activated and that data are backed up for the period in question in the event of an emergency or other particular incident;
  - .2 ensure that the telemedical services of TMAS Germany (Medico Cuxhaven) are made use of in the event of illnesses/injuries or if medications marked

with a '☎' in the Maritime Medical Handbook and/or in the 'State of medical knowledge in maritime shipping' have to be administered;

- .3 enforce the ship operator's occupational safety requirements within the framework of the SMS on board and supervise implementation thereof by the crew;
- .4 report discrepancies between the practices on board and SMS requirements (due to ambiguities, contradictions, impracticalities and/or a lack of resources, for example) to the ship operator for continuous improvement of the SMS;
- .5 make use of decision-making aids in emergency situations, establish a common understanding of the situation in the ship's command group through efficient communication, and ensure that all tasks are adequately covered by personnel and, if necessary, delegated accordingly.

## **2.5 BG Verkehr (Prevention Division)**

The Federal Bureau of Maritime Casualty Investigation recommends that the Prevention Division of BG Verkehr pay increased attention to compliance with the mandatory requirements of Section 21 DGUV Regulation 84 during ship inspections.

## **2.6 DNV as Classification Society of the SEOUL EXPRESS**

The Federal Bureau of Maritime Casualty Investigation recommends that the classification society DNV ensure compliance with construction rules for ladders and that they inspect them within the scope of compliance surveys and newbuilding inspections.