Transportа nelaimes
gadījumu un incidentu
izmeklēšanas birojs

Simplified report Nr. 1-2024

Serious injury of crew member on board of Maltese flagged vessel KAILI on 02 May 2024 in Bay of Riga

2024

Content

Preamble

The sole objective of the investigation of an accident shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor to apportion blame. The information provided in the report is not intended to be used in legal proceedings.

Transport Accidents and Incidents Investigation Bureau (hereinafter-Bureau), received information from the Latvian Coast Guard concerning the injury of a crew member on board the Maltese-flagged vessel KAILI on 02 May 2024 at 22.00. Acting with the endorsement of the Maltese Marine Safety Investigation Unit (hereinafter-MSIU), the Bureau has taken the lead in the safety investigation of this accident (EU Directive 2009/18/EC).

During the course of the safety investigation, KAILI has changed flag from Malta to Antigua & Barbuda (since 01 August 2024).

Image 1. Vessel KAILI

List of abbreviations

AB	Able Seafarer
AIS	automatic identification system
CPA	closest point of approach
ETA	Estimated time of arrival
IAW	In according with
SMS	Safety management system
TAIIB	Transport accidents and incidents investigation Bureau

1. Short Description of the Casualty

On 02.05.24, KAILI was underway to the port of Skulte, with an ETA of 23.00 (all times are local). KAILI had departed from the port of Uddevalla, with the intentions to load multiple types of bulk cargo in Skulte. During the passage, at about 18.00, whilst transiting the Irben Strait, the Master decided to install (shift) a transversal moveable bulkhead in the cargo hold, to divide the cargo hold space to accommodate the different types of bulk cargo, in accordance with expected cargo loading plan. The decision to shift the moveable bulkhead whilst underway (and in open sea), had been taken after taking into consideration the prevailing calm and fair-weather conditions. Moreover, the Master was keen to save daylight time in port for more efficient cargo operations. After opening and folding the hatch covers (between 19.00 and 19.30), seven crew members started the installation of the lower part of the moveable bulkhead, using the vessel's rolling gantry crane to move the bulkhead laterally / vertically, and to fasten it manually with pins into the designated clamping slots, having one crew member operating in cargo hold from a movable ladder. At 20.00, the lower part of bulkhead was successfully installed.

The Bureau believes that during the installation of the upper part of the bulkhead, the crew observed some misalignment with the pins and therefore, after the crew members fastened the port side pins, they tried to align the same level of upper slots and upper pins by slightly moving the bulkhead using the gantry crane. To achieve this, one of the crew members, an Able Seafarer (hereinafter-AB), climbed on a portable ladder inside the cargo hold, to try and align the pins and slots. He communicated verbally to guide the crane operator (2nd Officer) to put all the elements correctly. IAW the AB's recollection, it was during this process that he put his left arm between the cargo hold side shell (starboard side) and the movable, unsecured bulkhead, when the vessel rolled slightly as a result of small waves (possibly due to the wake generated by a nearby passing vessel). This caused the bulkhead to shift transversally, trapping the AB's left arm between the side shell and the bulkhead and inflicting a serious injury. The crane operator was able to shift the gantry crane aside, thus releasing the injured AB's arm. The injured AB was helped out of the cargo hold, administered first aid and the severity of his injury assessed. Following his assessment, the Master requested medical evacuation of the injured crew from the ship for further medical treatment at the nearest hospital ashore. All interested parties were informed.

Medical evacuation was executed by the Latvian Coast Guard, transferring the injured crew member to the port of Roja, arriving at 23.15, where an emergency ambulance team was

waiting to transfer him to Riga Hospital (Austrrumu Slimnīca), arriving at 23.15. In hospital, the AB underwent microsurgery operation to save his hand.

2. Facts

Accident basic data are shown in Table 1.

Table 1

Vessel's name	KAILI
IMO number	9114737
Call sign	9HQO8
Flag state	Malta
General measurements	Gross Tonnage 3117 tons; Length overall 99.86 meters; Width 13.60 metres, Summer Draft 5.64 metres; Main engine 2400 kW at 900 RPM
Ship owner / operator	Hansa Shipping AS / Hansa Ship Management OÜ
Vessel built / hull material	1996 / steel
Minimum safety crewing	9 persons
Vessel's type	Dry cargo bulker
Voyage from-to	Uddevalla, Sweden - Skulte, Latvija,
Voyage segment	Transit at open sea
Cargo	In ballast
Crew	9 persons
Accident data	
Accident severity/description	Serious accident/heavy hand trauma
Date and time of accident	02.05.2024; about 20.00 local time
Accident coordinates	App: Latitude 57°, 26. 2' N; Longitude 22°, 20.1' E
Weather conditions	Calm weather/slight wind; +18° C; daylight
Location onboard	Cargo hold, at Frame number 78
Vessel's operational activities during the accident	Transit - open sea. Preparation of vessel for cargo loading operations at port: installation of transverse, movable bulkhead
Human factors data	Possible factors: 1. Inaccurate crew situational awareness before bulkhead installation work to be commenced; 2. Miscommunication of orders when operating gantry crane during the accident; 3. Societal context on board which interferes with safety initiatives (exercising of Stop Work policy)
Consequences (for people, ship, cargo, environment, other)	Severe hand trauma, as result: long lasting recovery and medical rehabilitation was required

Shore authority involvement and emergency response	
Involved authorities	Latvian Coast Guard, Latvian Emergency medical service, Latvian Riga Hospital (Austrumu slimnīca)
Involved units and resources	Arrival of Latvian Coast Guard ship P-09, Latvian Emergency medical service's ambulance team
Speed of response	Ship P-09 has arrived to KAILI for medical evacuation within 20 minutes; transit to Port of Roja: 40 minutes, transit from port of Roja to Riga hospital: appr. 40 minutes
Actions taken	Medical evacuation of injured crew member from KAILI within appr. 3 hours (vessel-to hospital)
Results achieved	Injured seaman has delivered in hospital in due time for surgery

3. Narrative

3.1 Arrangements of KAILI prior expected port call to port of Skulte.

Correspondence between mv KAILI's operator, Hansa Shipping, and the vessel's agency in port of Skulte, dated 02 of May, confirmed that the vessel's ETA at the port of Skulte was 02.05.2024 at 23.00, stating also (by Hansa Shipping) that approximately four hours would be required for the installation of the moveable bulkhead. The installation of the moveable bulkhead was necessary to divide the cargo hold for the different types of cargo, planned to be loaded at port of Skulte, as per cargo loading plan (see Image 2).

3.1.1. Event 1: Master's decision. During the vessel's transit, when the vessel was underway through the Irben Strait (02 May, afternoon), the Master decided to install the transverse, movable bulkhead to divide the cargo hold. This decision was made to save on daylight time for normal cargo loading operation in port of Skulte. Moreover, the weather was favourable, calm and clear.

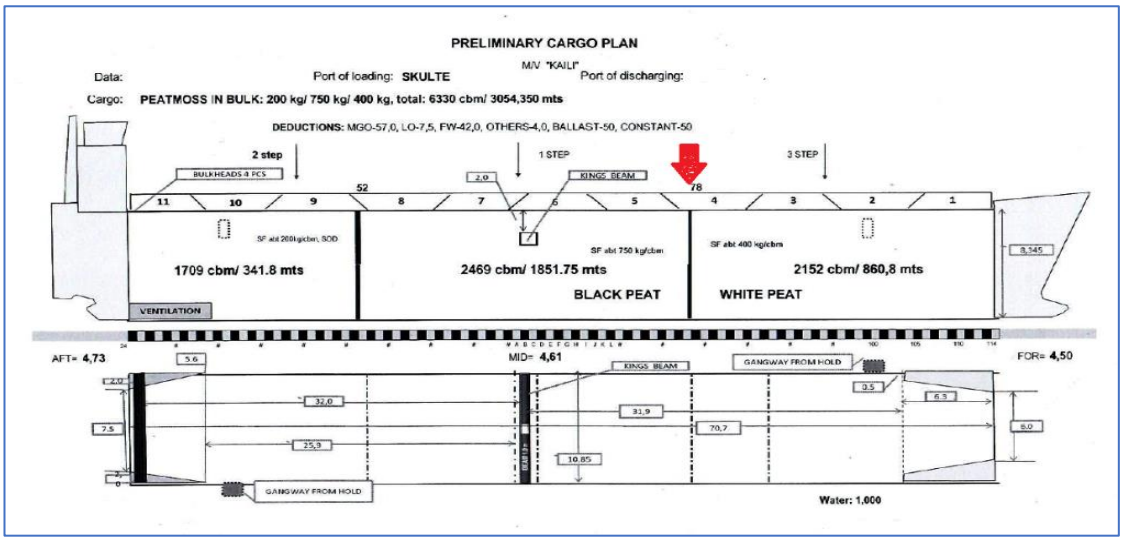

Image 2. Bulkhead location within cargo hold (on 78 frame), shown by red arrow as planned to be installed, in accordance with the cargo loading plan

3.1.2. Event 2: Bulkhead installation arrangements prior works to be started. The The Master informed the crew members about his decision to install the moveable bulkhead, at sea about 18.00. All the vessel's SMS related necessary documents and checklists were filled and completed, including the risk assessment, general permit to work, and the briefings to the seven involved crew members. The responsibilities for the operation of the gantry crane and work inside the cargo hold were designated as follows: 1. Gantry crane operator; 2. Controller

of work - port side; 3. Controller of work - starboard side; 4. Fastening of the upper pins - operator starboard side; 5. Fastening of the upper pins - operator port side; 6. Fastening lower pins operator starboard side; and 7. Fastening lower pins operator port side.

The cargo hold's hatch cover was opened at 19.30, and bulkhead installation works were commenced soon after.

Image 3. Moveable bulkhead installed in cargo hold with transverse fastening pins (*image is the property of Hansa Shipping AS)*

3.1.3. Event 3: Bulkhead installation. By 20.00, the lower part of the bulkhead had been successfully installed. However, during the installation of the upper part of the moveable bulkhead, the crew members observed misalignments of the bulkhead fixing pins. To rectify the matter, the crew members fastened the port side pins and made attempts to align the same level of upper slots and upper pins by slight adjustments of the bulkhead, using the gantry crane (see image 3, for illustrative purposes).

3.1.4. Casualty Event (Accident). The Able Seafarer, staying on a portable ladder inside the cargo hold, tried to align the pins and slots for fastening, verbally guiding the crane operator, to put all the elements correctly. During the process, the AB put his left arm between the cargo hold side shell and the unsecured movable bulkhead. At one point, the vessel rolled slightly (possibly due to the wake generated by a passing vessel), causing the bulkhead to shift transversally. Consequently, the AB's left arm was trapped between the cargo hold side shell and the bulkhead, inflicting a serious injury. The AB shouted to the gantry crane operator, prompting him to shift the gantry crane, so that he could release his arm. After releasing his arm, two crew members assisted and walked the injured crew member out of the cargo hold to the bridge.

3.1.5. Event 4. Medical assistance and medical evacuation: Medical First Aid was provided to the AB by the Chief Officer and the Second Engineer. Moreover, at 20.57, the assistance of the Latvian Coast Guard was also requested from KAILI and to medically evacuate the injured crew member. Eventually, the injured crew member was transferred to the Latvian warship P-09 at 21.34. The injured AB was then transported to the port of Roja and transferred to an emergency ambulance team at 23.30. The injured crew member was admitted to a Latvian hospital at approximately 00.30.

3.1.6. Event 5. KAILI arrival at port of Skulte and first crew statement about the accident released to the Latvian investigating authorities. Latvian TAIIB received the accident notification by email, from the Coast Guard on 03 May 2024, at 01.30. KAILI eventually berthed at the port of Skulte, at approximately 04.00. An investigator from the Latvian TAIIB boarded the vessel on 03 May at approximately10.45 when cargo loading operations on board the vessel had already commenced. All initial statements (written and verbal *as per* 03 May 2024) provided by the Master, described the accident as an injury to the left arm during gantry crane operations, with the injury itself being described as a minor one.

The Bureau was eventually informed of the actual injury severity on 07 of May 2024. A representative of the Bureau interviewed the injured AB in hospital on 07 and 09 of May 2024 and gathered more information from the other crew members in the port of Mersrags.

4. Analysis

Initial reports to the Bureau, concerning the cause of the incident

The Bureau expresses its concerns that the initial information released from the vessel, stated that the cause of the accident was due to the negligence of the injured AB, during the process of removing the vessel's gantry crane safety pins.

It is very distressing and of concern for the Bureau not only to observe a seafarer blaming another seafarer for an injury, but also because the initial report released by the vessel stated that the injury was minor and made no reference to the moveable bulkhead - a declaration, which the Bureau considers as an attempt to derail its safety investigation.

4.1. Contextual and environmental settings for the events related to the marine casualty or incident

4.1.1. Analysis of the Event 1: Master's decision to install a bulkhead during the vessel's transit at open sea. In accordance with the Master's report, the decision had been taken because of concerns to gain on daylight time in port for a more convenient and safe cargo loading operation. The company's statements and internal investigation report concluded that the master's decision had breached the company's instructions on the use of gantry cranes at sea. It was also concluded that his decision was in contravention to the company's SMS procedures and instructions. It is pertinent to highlight that the company's SMS Manuals do not specifically prohibit the installation of moveable bulkheads at sea.

Whilst industry text books advise against the opening of hatch covers when the vessel is at sea, unless absolutely necessary, as the actions on board on 02 May 2024 had been supported by two filled and signed formats "Risk assessment" and "General permit to work" as per vessel's SMS, therefore, giving the operation a sense of legitimacy.

1 Remark: The Master of mv KAILI had 42 years of total seagoing experience, having 25 years of experience in position of Master, as well as working 10 years particularly with Hansa Shipping company. The safety investigation was unable to identify the rationale behind the master's decision to shift the moveable bulkhead at sea, considering that he had already requested a time slot of four hours in port to allow for the bulkhead operation. Therefore, the

fact that he had requested a time slot of four hours but, when he thought that he had the opportunity to execute the operation before arrival, he took that opportunity, suggested that he had grave concern on the time. Whilst this decision is indicative of a situation where the balance of risk *vs* the benefits to take the risk tipped in favour of taking the risk (to reap the benefits), the decision was also influenced by the clear weather, giving the master no cues that the operation may go wrong. The contextual information which the master had at the time, in addition to the precautions which he had taken, and the belief that he would have saved on time whilst in port, suggested to him that there was no reason for not doing this operation at sea, whilst the vessel was underway.

2 Remark: Company's "Stop Working Policy": one of the submitted basic documents is "Company policies". The documents referred to a 'Stop Work' policy, giving rights to all employees and contractors to stop work if they believed that conditions were unsafe. The documents stated further that all persons were responsible for their own safety and must follow regulations, specifying that work can be halted either if circumstances changed, or safety measures were inadequate, irrespective of whether an eventual investigation justified the stop work order.

Crew members explained that bulkhead installation at open sea was not a usual practice on board KAILI However, notwithstanding the 'Stop work' policy, one crew member confirmed that he was aware of this Policy; others claimed that they feared dismissal if they had to enforce the Policy. This information appeared to suggest a societal climate on board, which did not support Company initiatives aimed at controlling exposure to risk, resulting from on board activities. In fact, albeit aware of the risks involved, the process to shift the moveable bulkhead went ahead, whilst the vessel was at sea and underway.

4.1.2. Analysis of the Event 2: Bulkhead installation arrangements prior works to be started. The safety investigation sought to enquire on the preparedness of the crew members and on particular discussions and safety briefings prior to the shifting of the moveable bulkhead. The responses received, however, did not provide a harmonised reply, with a number of crew members claiming safety briefings had been done, whereas others either had no answer, or confirmed that safety briefings had not been made. Analysing the data received, the Bureau believes that there are either inconsistencies in the way the crew members replied,

or else, not everyone was involved in the safety briefing (and potentially unaware that it had been done). Those who claimed not to recall any safety briefings may be the ones who, either in a discreet way, are ‘protecting’ their colleagues, they are being truthful and do not recall, and / or a combination of reasons.

It was nonetheless clear for the safety investigation that irrespective of the feedback received on the safety briefings prior to the shifting of the cargo hold if, indeed, there was a safety briefing prior to the shifting of the moveable bulkhead, then the meeting was anything but effective and fruitful.

4.1.4. Analysis of Casualty Event (Accident):

The possible influence of a vessel passing close to KAILI and causing a slight roll and consequent motion of the free-hanging bulkhead was analysed by the Bureau. (See Image 4. Snapshot of AIS data on movement of KAILI in Irben Strait).

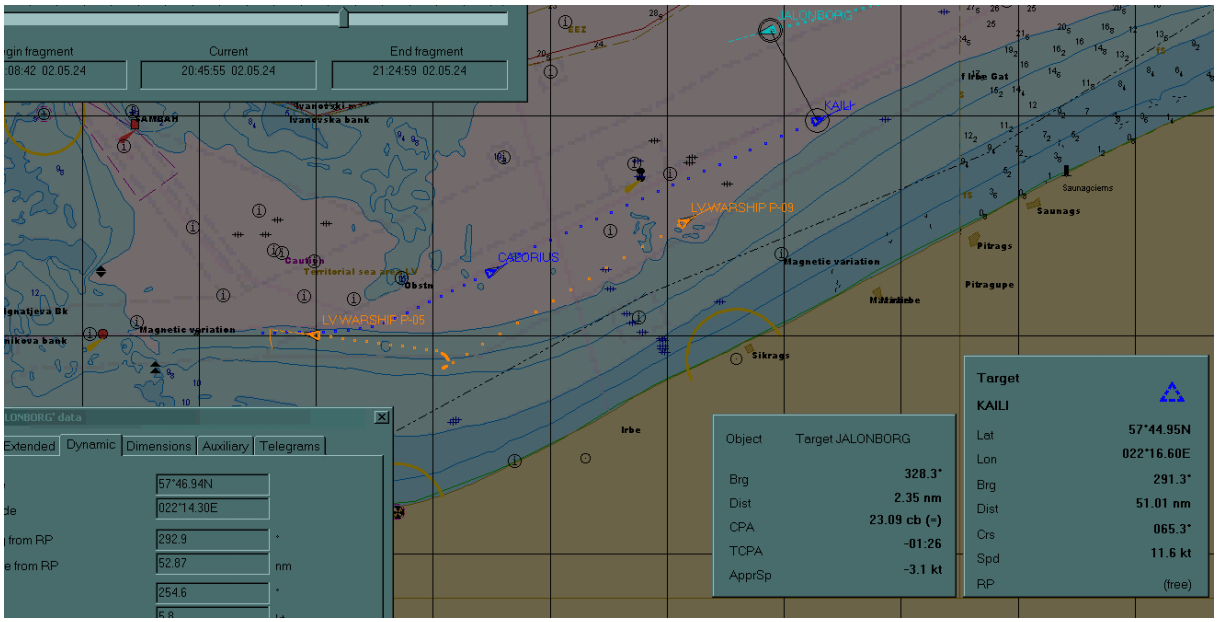

Image 4. Snapshot of AIS data on movement of KAILI in Irben straight at the moment of CPA (closest point of approach) to vessel JALONBORG

The analysis of the available AIS data, indicated that the only vessel passing in vicinity of KAILI was mv JALONBORG. The closest distance between the two vessels was 2.35 nautical miles, at 20.45. This time almost correlates with the bulkhead installation works on board KAILI and the approximate time of the accident. Therefore, the possibility of the wake from JALONBORG causing KAILI to roll slightly during bulkhead operation was not excluded.

4.1.5. Analysis of Event 4. Medical assistance and medical evacuation

MRCC Riga received a request for the medical evacuation of an injured seafarer from KAILI at 20.57 (by phone from the vessel's agent) *i.e.*, approximately 20 minutes after the accident (considering JALONBORG transit at 20.45, as a benchmark). Warship P-09 (Latvian Coast Guard) arrived and embarked the injured AB at 21.32 (less than one hour after the accident). During the passage to the port of Roja, medical assistance was provided by military paramedics, along with phone consultancy with emergency medical experts. The AB was then transferred to the ambulance team at 23.30 in the Port of Roja. In general, the Bureau considered the medical assistance as adequate.

4.2. Human erroneous actions and omissions

4.2.1. Master's decision to install a moveable bulkhead in open sea before the vessel's arrival at port of Skulte made sense to him at the time on the basis of the information which he had and the cues which he was receiving.

4.2.2 The crew members who were in close proximity of the operation did not exclude the possibility that the crane operator, either did not understand the verbal directions communicated by the AB or, he executed an erroneous operation on the crane's controls, and which moved the movable bulkhead (which was still suspended from vessel's gantry crane).

4.3. Contributing factors of the marine casualty or incident involving person-related functions, shipboard operations, shore management or regulatory influence

4.3.1. Vessel's SMS language.

In accordance with the Company, all vessel's SMS documents and working language on board is English. Since the working language on board was Russian, crew members did not have access to work templates in their native language.

Whilst the Company provided adequate policies in English together with the crew members' individual English test certificates, during the safety investigation, the Bureau observed potential issues with some of the crew's lack of understanding of the details included in the Company documents, which written in English.

4.3.2. Psychological climate and working-rest rates onboard of the vessel

The Bureau did not identify factors which affected the wellbeing of the crew members. However, the Bureau was provided with information which suggested that the master's leadership style was strictly hierarchal, and which did not encourage an open discussion with fellow crew members on the shifting of the moveable bulkhead at sea. If this was indeed the case, the Bureau did not exclude that such leadership style may have stifled safety initiatives encouraged by the Company. The Bureau was not aware of any reports lodged with the Company to report on this matter.

Conclusion: Psychological pressure in chain of command is not preponderant issue onboard of KAILI. However, it was not excluded that the adopted leadership style on board may have suppressed Company initiatives intended to promote a robust safety climate on board.

One of the crew members claimed that there were regular and frequent instances on board when he felt he was lacking sleep. The Bureau believes that this is a crucial claim. Whereas the hours of rest and work may have been in order and respected the provisions of the relevant conventions, it need to be mentioned that mitigating fatigue is not about hours of rest, as much as it is about hours of good quality sleep. The Bureau is aware that many companies do not keep records of good quality sleep, even because there are no legal requirements to do so. Nevertheless, without such records, it would be very difficult, if not impossible for the Company to accurately determine whether fatigue is a safety concern on board its fleet.

4.3.3. Actions taken

Actions taken by company Hansashipping AS:

a. The Company has implemented a plan addressing the work culture on board Company ships, with the objective of improving the SMS;
b. The vessel's standing orders have been amended to include an explicit prohibition to install bulkheads whilst the vessel was underway in open sea.

5. Conclusions

a. The injury to the seafarer was the result of the moveable bulkhead moving whilst still suspended by the gantry crane, resulting in his arm remaining trapped between the bulkhead and the cargo hold side shell plating.

b. The possibly of the wake from JALONBORG causing KAILI to roll slightly during bulkhead operation was not excluded.

c. The decision to shift the bulkhead had been taken because of concerns to gain on daylight time in port for a more convenient and safe cargo loading operation.

d. The company's SMS Manuals do not specifically prohibit the installation of moveable bulkheads at sea.

e. The decision to shift the moveable bulkhead had been supported by two filled and signed formats "Risk assessment" and "General permit to work" as per vessel's SMS, therefore, giving the operation a sense of legitimacy.

f. The fact that the master had requested a time slot of four hours but, when he thought that he had the opportunity to execute the operation before arrival, he took that opportunity, suggested that he had grave concern on the time.

g. The contextual information which the master had at the time, in addition to the precautions which he had taken, and the belief that he would have saved on time whilst in port, suggested to him that there was no reason for not doing this operation at sea, whilst the vessel was underway.

h. The societal climate on board did not support Company initiatives aimed at controlling exposure to risk, resulting from on board activities.

i. If a safety briefing was held on board prior to the shifting of the moveable bulkhead, then the meeting was anything but effective and fruitful.

6. Safety recommendations

Recommendations to Hansashipping AS:

1.1. Review the moveable bulkhead installation instructions manuals (covering also all aspects of gantry crane operations) IAW requirements, as defined by IMO Circular MSC.1/Circ.1663 GUIDELINES FOR LIFTING APPLIANCES, (issued 28 June 2023) where *inter alia* it is stated in Para 3.6.1.2 : *All personnel involved in a lifting operation should understand their role during the operation and, in particular, the signals that may be required to commence, coordinate or stop the operation*.

1.2. Review the Company's SMS documentation in order to bridge gaps in the language used and spoken.

1.3. Review vessel's working-rest hours policy and procedures IAW the Maritime Labour Convention, 2006 requirements, in order to mitigate potential fatigue issues.

TAIIB lead investigator: Aleksandrs Pavlovics (signed)