



SAFETY INVESTIGATION REPORT

201108/003

REPORT NO.: 05/2012

July 2012

The Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 prescribe that the sole objective of marine safety investigations carried out in accordance with the regulations, including analysis, conclusions, and recommendations, which either result from them or are part of the process thereof, shall be the prevention of future marine accidents and incidents through the ascertainment of causes, contributing factors and circumstances.

Moreover, it is not the purpose of marine safety investigations carried out in accordance with these regulations to apportion blame or determine civil and criminal liabilities.

NOTE

This report is not written with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2012, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The report may therefore be misleading if used for purposes other than the promulgation of safety lessons.

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MV BALTIA
Lifeboat accident
In position 46° 12.2'N 123° 48.86'W
01 August 2011

SUMMARY

On 02 August 2011, the managers of the *MV Baltia* notified the Maltese authorities that whilst on anchor, the vessel had reported that the master and one AB were injured during a lifeboat drill.

The chief mate informed the local authorities of the accident and an ambulance was dispatched on site. Whilst the AB was discharged from hospital and ordered to rest for a period of seven days on board, the master underwent four hours of surgery on 04 August 2011. As a result of the accident, he sustained three fractured vertebrae.

The evidence was collected over two deployments. The analysis found that the lifeboat was almost certainly released by the crew members inside from a considerable height. It also found that there was a communication barrier between the chief mate and the master inside the lifeboat.

As a result of this investigation, two safety recommendations were issued to the managers.



FACTUAL INFORMATION

Vessel description, crew and external environment

Baltia, a 38,849 gearless bulk carrier, was built by Misushima Yard, Japan in 2005. She is registered in Malta, owned by Baltia Maritime Ltd., and managed by Orion Bulkiers GmbH & Co KG. She is classed with Nippon Kaiji Kyokai. The vessel has an overall length of 225 m and a beam of 32.3 m. *Baltia* is fitted with seven cargo holds.

The vessel was engaged in international voyages and at the time of the accident, she had a crew of 20. The master was a Russian national whereas the remaining crew members were Ukrainian, Polish, Chinese, and Sri Lankan. The working language on board was English.

All the crew members who were engaged in the lifeboat drill, bar the master, had been on board for several months. All of them were fully familiarised with the launching procedures as prescribed in the company's and vessel's safety management system manuals.

The accident happened at 1214. It was clear weather and calm waters (the vessel was anchored in the Columbia River, USA) although there was significant current during the late stages of the drill. A gentle breeze blew from the west. The air temperature was 22°C.

Lifeboat, fittings, and lifeboat drills

Baltia was fitted with two totally enclosed lifeboats each with a capacity of 25 persons (figure 1). They were built by Shigi Shipbuilding Co. Ltd., in 2004.

The lifeboats were fitted with an on-load / off-load release mechanism. In the off-load mode (*i.e.* with the lifeboat waterborne), release of the lifeboat necessitated the

removal of the safety pin and the pulling of the release handle in the wheelhouse.

Both hooks were designed to open simultaneously and the lifeboat is released from its falls. If the lifeboat was not waterborne, the crew member had to pull the safety pin and lift the safety interlock. The interlock had to be kept in the upward position whilst the release handle is pulled to release the boat. Being enclosed, the lifeboats were also fitted with a remote control wire operation. The seating arrangement is shown in figure 2.

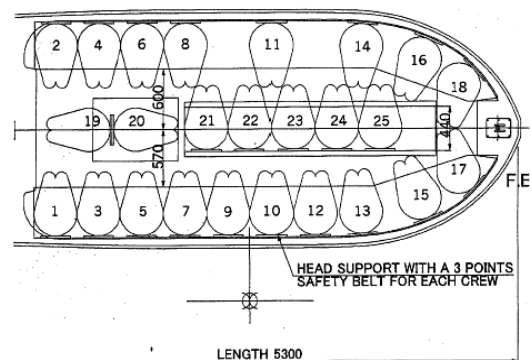
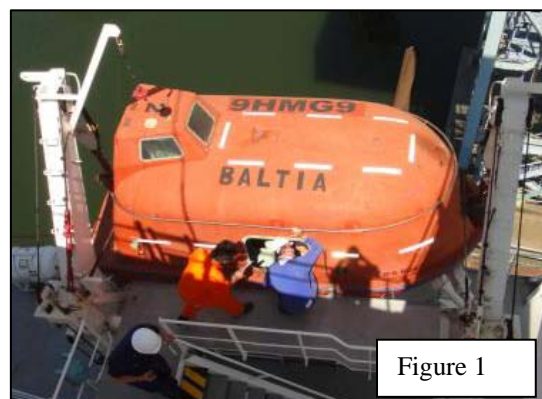


Figure 2



The seats in both lifeboats (figure 3) were fitted with rubber pads (10 cm by 110 cm) which served as head rests. These seemed to have been part of the original design since the managers had no documents which indicated that these were fitted or replaced at some later stage.

The last periodic service / inspection on the two lifeboats was carried out by an approved manufacturer's representative on 26 December 2010, in accordance with the relevant SOLAS regulations and MSC Circular. The actuating of the hydrostatic interlock (at 10% overload) was carried out satisfactorily on 28 December 2009¹. All inspected/tested items, including the release gear mechanism, were found in good working order.

In accordance with the relevant SOLAS Chapter III regulations and flag State requirements, the safety management system of the vessel required that each lifeboat is launched and manoeuvred in the water by its assigned operating crew members, at least once every three months during an abandon ship drill. A drill plan, which was also part of the safety management system plan, indicated lifeboat launching procedures. On this particular occasion, the launching of both lifeboats was carried out on the same day.

The safety management system also required that a drill description is recorded on the relevant ISM form. The chief mate's name first appeared on the ISM form on 27 February 2011. He had participated in all abandon ship drills since then, including the launching of the lifeboats in the water. The master's name first appeared on the form

¹ The SOLAS Convention requires that the on-load release gear is subjected to a thorough examination and operational test during annual surveys and operationally tested under a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment whenever the release gear is overhauled, at least once every five years.

dated 16 July 2011. The drill conducted on 01 August 2011 was his third abandon ship drill and the first one which involved manoeuvring of the lifeboats in the water.

The available ISM records indicated that in terms of frequency, the vessel adhered and complied with the lifeboat drills requirements. The master's standing verbal instructions were that the lifeboat should always be lowered to the water before released.

Narrative

Baltia arrived off Columbia River at 1705 on 26 July 2011. She proceeded to anchor off Astoria, Oregon awaiting berth. After berthing, the vessel was informed that there was insufficient cargo available. *Baltia* eventually departed her allocated berth and headed for anchorage until additional cargo was ready, estimated to be on 06 August 2011.

On 01 August 2011, whilst on anchor, boat drills were planned for the port and starboard enclosed lifeboats. After receiving the necessary permits from the USCG, the crew members made the necessary preparations to begin with the release of the starboard lifeboat. The agreed procedure was to lower the lifeboat without crew members inside, hoist it, and lower it again with crew members inside until waterborne.

The lifeboat was therefore first lowered down but above sea level without crew, and then hoisted up again. At embarkation deck, the chief mate (in charge), third engineer, one AB, and the deck cadet boarded inside, secured their seatbelts, and were lowered down until waterborne. The lifeboat was released and manoeuvred around the vessel. The opportunity was taken by the crew members to conduct a visual inspection of the ship's hull and take several photographs. Following this exercise, the starboard lifeboat was recovered without any incident.

Following the full recovery of the starboard lifeboat, the port lifeboat was also lowered above water level without crew members inside at about 1155. This time, the master (in charge), the third mate, third engineer, one AB and one OS boarded the lifeboat and were lowered down at about 1205. Assisting the chief mate on boat deck were one OS and the deck cadet, and another OS who was handling the forward painter on the main deck bollard located close to cargo holds nos. 6 and 7.

Inside the lifeboat, the master was crouched into the wheelhouse seat with his knees held up towards the steering wheel and hunched over so that his head would not hit the overhead structure². The lifeboat was only lowered after the chief mate received the confirmation from the master that all crew members were secured in their seats with their seat belts fastened. As for the previous launch, all crew members were wearing a safety helmet.

During the lowering of the port lifeboat, the chief mate observed that the river current was stronger and hence thought that it was opportune to stop the lowering and pick the slack on the lifeboat painter before the lifeboat reached the water. It was estimated that at this stage, the lifeboat was about one metre above sea level.

The chief mate recalled that he advised the master via VHF radio that the *“lifeboat is one metre, will secure the painter”*. The second mate on deck and the third engineer inside lifeboat confirmed the chief mate’s communication to the master.

The master stated that he believed that the lifeboat had reached the water. Believing so, he acknowledged by replying that he will start the engine. The engine was started successfully, after which, it became very noisy inside the lifeboat.

² The master was over 1.83 m tall.

Soon after, the master attempted to release the lifeboat by pulling the release handle, but the safety pin and the interlock were still secured in place. The third mate noticed the master’s attempts to release the lifeboat and advised him of the safety pin and the interlock.

The master requested him to remove the pin and disengage the interlock. The master then pulled the handle and both hooks opened. The lifeboat struck the water with considerable impact. The second mate, who was on the bridge talking to the USCG over the VHF about the progress of the lifeboat drill, described the lifeboat hitting the water with a loud noise.

Soon after, the master advised the crew in the lifeboat that he was unable to feel or move his body below the waist. One AB also complained of injuries in the groin area.

The chief mate notified the USCG duty officer. The USCG advised the chief mate that the lifeboat should take the master and the other AB to a nearby dock where an ambulance would be waiting. The USCG’s instructions were complied with and the master was removed from the lifeboat on a stretcher.

The AB was also taken ashore to a hospital in the ambulance. The third mate manoeuvred the lifeboat back to the ship, encountering difficulties to come alongside due to the increasing river current. The lifeboat’s external handhold stanchions were slightly damaged during the recovery process, which was successfully completed with the help of a nearby towing boat.

ANALYSIS

Launching the lifeboats

The launch of port and starboard lifeboats was carried out in compliance with the relevant sections of the safety management system manuals and the MSC.1/Circ.1206/Rev.1 of

11 June 2009 on ‘Measures to Prevent Accidents with Lifeboats.’ The approach taken did not contravene the clarifications in MSC.1/Circ.1326 and MSC.1/Circ.1326/Corr.1.

Therefore, the precautions taken by the crew members before they embarked on the lifeboats necessitated that the lifeboats were first lowered without persons inside, and then lowered into the water with only the minimum number of persons on board deemed necessary to operate the boat.

It may be argued that the crew members had another option. In 2009, the Insurance Department within Orion Bulkers brought to the attention of the crew members Loss Prevention Circular 9-09³. Section 8.10 of the safety management manual also provided detailed information on emergency preparedness in the case of davit launched lifeboat drills.

Section 8.10 specified that (for the case of enclosed lifeboats) after the lifeboat is lowered, it should then “be raised to a suitable level for the operating crew to embark via embarkation ladder or from the embarkation deck, whichever the safest access.” It also specified that lifeboats were to be only released when they were waterborne.

A prima facie, the crew members therefore also had the option of going down all the way the embarkation ladder rather than down inside the lifeboat. Such a statement, however, is subjective. It does not necessarily mean that going down the embarkation ladder would have been a safer option even because a risk assessment was not carried out. The vessel was in ballast and the freeboard was high. Therefore, the

³ The Circular referred to MSC.1/Circ.1326 and Gard’s advice that crew members should not be on board the lifeboats in the course of lowering and hoisting exercises, until further developments at the IMO on the matter.

climb down the embarkation ladder would have been extremely long.

The other option was to only raise the lifeboat to a suitable level and then embark the lifeboat by going down the remaining distance using the embarkation ladder. This option was also not free from hazards. To start with, the crew members had to determine what would have been “a suitable level.” Then, they still had to be lowered a considerable height inside the lifeboat.

In addition, the lifeboat and davit system had already been tested by lowering the lifeboat until it was almost waterborne and without any crew members inside. The system operated satisfactorily and therefore the crew members had no reason to doubt the procedure and (this time) lower the lifeboat with a minimum number of crew members inside.

The height of the drop

The available evidence on the actual height of the drop did not help much to quantify the drop. According to the chief mate, the lifeboat was about one metre above sea level. On the other hand, the impact felt inside the lifeboat, the severity of the injuries sustained by the master, and the loud noise heard by the second mate from the bridge suggested that the actual drop was most probably more than one metre.



The height of the boat deck from the keel was 23.00 m. Taking into consideration the height

of the chief mate (1.75 m) and the aft draft (7.35 m), the chief mate was about 17.40 m above sea level.

Considering this height (figures 4 and 5), it would have been very difficult for the chief mate standing on the boat deck, to determine with a significant degree of accuracy that the lifeboat was actually only one metre above the sea level⁴.



It has to be pointed out that the only relevance of the height of the drop was the resulting injuries sustained by the master⁵. The chief mate was under no obligation to calculate the height above sea level because the intention was not to release the mechanism in the on-load mode.

This was the procedure followed during the launch of the starboard lifeboat. It was yet again the procedure intended to be followed with the port lifeboat. The external environment conditions, however, had changed from the time the starboard lifeboat was lowered, hoisted, lowered and hoisted again and secured to its davits. Therefore, the chief mate deemed his intervention to be necessary.

⁴ Figures 4 and 5 are pictures of the starboard side but the height on the port side is exactly the same. The pictures were taken by the crew members inside the starboard lifeboat.

⁵ As already indicated in the narrative part, there was another crew member who was injured. However, his injuries were relatively minor.

The master's decision to release the lifeboat

The master's standing instruction to the crew members was that lifeboats had to be waterborne before the release mechanism was operated from the inside. The intentions of the master were therefore clear and there was no doubt that he never intended to operate the release mechanism in the on-load mode. The available evidence indicated that the on-load release mechanism did not operate unintentionally and the safety interlock was deactivated by one of the crew members so that the master could release the lifeboat.

The master claimed that notwithstanding the chief mate's information that the lifeboat was still not waterborne, he was under the impression that the lifeboat had reached sea level. In his acknowledgement, the master did not repeat the chief mate's notice and only acknowledged by stating that he will be starting the lifeboat's engine.

It did not seem that the chief mate talked to the master any further. However, even if this would have been the case, it was highly improbable that the master would have heard the message. Since the engine was running, the noise would have prevented any two-way communication.

Other crew members noticed the master trying to release the lifeboat by pulling the release handle. Some of them claimed that they were aware that the lifeboat had not yet reached the water level. However, none of the crew members raised this particular point with the master, in all probability thinking that the master was fully aware and conscious of his decision to release the lifeboat even if it was not yet waterborne. Moreover, they were also unaware of how high the lifeboat was from the sea level.

The on-load release procedure

The release mechanism could be operated in both the on-load and off-load modes. If it were to be operated in the off-load mode (the lifeboat is waterborne), the crew members

inside had to carry out two operations. In the on-load mode (the lifeboat still suspended from its falls), the release procedure necessitated the crew members to take three steps, *i.e.* pulling out the safety pin, lifting the safety interlock and pulling the release handle whilst the interlock was kept in the upward position.

The master's intention to release the lifeboat by simply pulling up the release lever was an indication that he was convinced that the lifeboat was waterborne. Even more, it was also unclear to him that by-passing a hydrostatic release unit (by deactivating a safety interlock) could have very well be a tell-tale sign that the lifeboat was not yet waterborne.

Of particular interest were the unquestioned actions of the master. Not only, but one of the crew members indicated to the master that he was not applying the right (on-load) release procedure.

Whilst the crew member who drew the attention of the master on the (on-load) release procedure recalled feeling the lifeboat stop, he did not specify that he believed it was waterborne. Moreover, he only understood the master saying that he intended to start the lifeboat engine.

The managers confirmed that no formal / informal report was made by the ship, which suggested that there was a fault within the hydrostatic release mechanism. Therefore, its by-passing was not the result of a necessary procedure to overcome some mechanical fault within the hydrostatic release. Available records did not indicate any problems with the hydrostatic release mechanism.

It was therefore strongly indicated that the crew member's action to remove the safety pin and lift the interlock lever was the result of his unawareness of the master's perception that the lifeboat was waterborne when in fact it was not.

Injuries sustained by the master

The master's spinal injuries were caused by a longitudinal compression, which is one type of severe forces that may cause a spinal injury. A longitudinal compression may crush the vertebrae lengthwise against each other.

It is not excluded that in view of the restricted leg and head spaces available in the lifeboat's wheelhouse, the master had to sit in such a position that the fall contributed to a longitudinal compression, which severely damaged a section of his thoracic vertebrae with subsequent paralysis of his lower extremities.

CONCLUSIONS

1. The precautions taken by the crew members during the lowering of the lifeboats were in compliance with the company's instructions.
2. The master's decision to release the lifeboat was based on his understanding that the lifeboat was waterborne.
3. The master's decision was obscured by an unclear understanding of the lifeboat release mechanism.
4. It is almost certain that the height of the lifeboat drop was more than one metre.
5. Unaware of the master's intentions, none of the crew members inside the lifeboat remarked to the master that the lifeboat was not yet waterborne.
6. There was an inadequate two-way communication loop between the master inside the lifeboat and the chief mate on the boat deck.
7. The on-load release mechanism operated perfectly and as intended.

RECOMMENDATIONS

Orion Bulkers GmbH & Co KG, Germany is recommended to:

05/2012_01 Bring to the attention of the crew members serving on board their ships, the Lifeboat Safety Poster attached to IMO document DE 52/6/4.

05/2012_02 Ensure that an adequate risk assessment procedure is drafted for all its ships and that it addresses specifically the launching of lifeboats.

SHIP PARTICULARS

Vessel Name:	BALTIA
Flag:	Malta
Classification Society:	Nippon Kaiji Kyokai
IMO Number:	9286920
Type:	Bulk Carrier
Registered Owner:	Baltia Maritime Limited
Managers:	Orion Bulkers GmbH & Co KG, Germany
Construction:	Steel
Length Overall:	225.00m
Registered Length:	217.68
Gross Tonnage:	38,849
Minimum Safe Manning:	16
Authorised Cargo:	In ballast

VOYAGE PARTICULARS

Port of Departure:	Lanshan, China
Port of Arrival:	Vancouver, United States
Type of Voyage:	International
Cargo Information:	In ballast
Manning:	20

MARINE OCCURRENCE INFORMATION

Date and Time:	01 August 2011 at 12:14 (LT)
Classification of Occurrence:	Serious Marine Casualty
Location of occurrence:	46° 12.2'N 123° 48.86'W
Place on board	Port side lifeboat
Injuries / fatalities:	Two crew members injured
Damage/environmental impact:	None
Ship Operation:	Normal service – on anchor
Voyage Segment:	Arrival
External & Internal Environment:	The weather was clear, calm conditions and a westerly breeze. The current increased considerably during the lowering of the second lifeboat. The lifeboat was closed tight and with the minimum number of operating crew inside.
Persons on board:	20