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, 2011, 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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The safety investigation concluded that the crew member who was cleaning the cargo hold with a hose lost his balance as he tried to free the snagged hose. The cargo hold washing was also being carried out from an area, which was neither designed nor designated for this purpose.

On the basis of the safety actions implemented on board, no recommendations have been made to the Company.

Adam Asnyk
Serious injury to crew member
in position 23° 57.7’ N  118° 37.4’ E
15 February 2018

SUMMARY

Adam Asnyk, a Maltese registered general cargo ship was on a ballast passage from Zhuhai (China) to Xingang. On 15 February 2018, at about 1820, a crew member fell from a height of about 10 metres during a cargo hold cleaning operation, which resulted in serious injuries to the person. The crew member sustained multiple fractures to his leg, arm and pelvis. He was recovered from the cargo hold and administered first aid. The vessel then diverted to Xiamen where the injured crew member was disembarked.
FACTUAL INFORMATION

Vessel
Adam Asnyk was a 24,115 gt, Maltese registered general cargo vessel built by COSCO Dalian Shipyard in China, in 2009. The vessel has a length overall of 199.8 m, a moulded breadth of 27.80 m and a moulded depth of 15.5 m. She had a summer deadweight of 30,346 tonnes, corresponding to a summer draught of 11.0 m.

Adam Asnyk was owned by Kamil Norwild Shipping Company and managed by Chinese-Polish Joint Stock. Adam Asnyk was operated on the spot market, carrying bulk and break-bulk cargoes worldwide. She was fitted with five cargo holds and four deck cranes. Adam Asnyk could also carry containers in her cargo holds and on the main deck.

Crew members
At the time of the accident, the vessel was manned by a crew of 23. Most of the crew members were Polish, with a number of deck ratings and cadets from the Philippines. The second mate was from Belarus. The vessel was manned in excess of the Minimum Safe Manning Document issued by the flag State Administration. The working language on board was English and the Safety Management System (SMS) was also available to the crew in English.

The injured AB was 63 years old and was a Polish national. He had the necessary qualifications to serve as a rating forming part of a navigational watch.

The AB had first gone to sea in 2001. He had been employed by the present Company since completing his first contract with another Company. This was his third contract on board Adam Asnyk. He had last joined the vessel on 27 November 2017 in Shanghai. His latest medical examination was conducted on 02 November 2017 and he was declared fit for duty as an AB.

Narrative
Adam Asnyk departed Zuhai, China at 1700 on 14 February 2018, after discharging a cargo of iron ore. The vessel was in ballast and bound for Xingang, China, where she was scheduled to load project cargo. Her estimated arrival date at Xingang was 19 February.

The next day, on 15 February, the crew were tasked to clean cargo hold no. 4 (starboard side) in preparation for loading the next cargo. Prior to starting the work, a safety and task briefing was held at about 0800 by the chief mate and the deck crew members.

Soon afterwards, the crew members were deployed. Initially, the cargo residue was removed, followed by the sweeping of the cargo hold. This work was carried out over the day, with the crew members taking their usual meal and coffee breaks. They then stopped at approximately 1700 for dinner and resumed work at about 1800 so as to wash down the cargo hold.

At about 1800, the bosun entered the cargo hold first, after switching on the extra lighting. Thereafter, AB-1 (the injured crew member) and AB-2 connected a fire hose to a sea water hydrant on the main deck in close proximity to cargo hold no. 5 (starboard). It was reported that AB-2 then opened the valve of the fire hydrant while AB-1 stood over the entrance of cargo hold no. 4 (starboard) and rinsed the cargo hold’s access from above.

Even before accessing the cargo hold access hatchway to descend below, both crew members were aware that they would need a longer hose. They therefore took another fire hose and connected the two hoses. AB-2 again opened the valve and AB-1 descended the access ladder. At the first platform (Figure 2), AB-2 passed him the pressurised fire hose (with the nozzle shut). Sufficient length was passed over to AB-1 to grasp it under his left arm.
From this position on the first platform, AB-1 washed the upper parts of the cargo hold’s starboard side, including the side brackets and support. As this area was about to be completed, AB-2 descended the ladder and AB-1 stepped aside to allow him to descend to the next level so that the hose could be passed to him at tank top level (Figure 2).

At about 1820, as AB-1 completed the washing of the starboard side, he turned his attention to the port side and since the hose was too short to direct the water jet towards that area, he tugged at the hose with no result. He then tugged again and this time, more length of the hose came down.

The extra length of hose fell on AB-1 and since it was charged with water and with considerable weight, it somehow managed to cause the safety railing to dislodge upwards from its position (Figure 3). This also resulted in AB-1 losing his balance and his hold on to the fire hose and consequently he fell through the open railing. As he fell, he instinctually grabbed hold of the hose again but slipped down until he came to the end of the hose. He then lost his grip and fell on to the tank top.

AB-1 landed on both of his legs and then fell on to his back. AB-2, who had witnessed the entire accident, immediately raised the alarm. The bosun, deck fitter and another AB working in the cargo hold rushed to the injured person to assess his physical condition, and relayed the information to the bridge. The master raised the alarm and both the chief mate and second mate proceeded to the cargo hold to assess the injured person’s condition and administer first aid.

At about 1830, the hatch covers were opened and the injured person was lifted out of the cargo hold, using one of the deck cranes. He was subsequently shifted to the vessel’s hospital. At 1951, the master established contact with MRCC Shantou to seek assistance and at 2000, the vessel diverted to Xiamen. At about 2023, the master also sought medical assistance from Tele-Medical Advice, Gdynia.

Eventually, the vessel dropped anchor at Xiamen anchorage at 0020 on 16 February and the injured crew member was disembarked at 0150 on a boat that the vessel’s agent had hired.
Injuries to the AB
The AB suffered multiple injuries including multiple pelvic fractures, thoracic and lumbar fractures, fracture of the left ankle, fracture of left calcaneus, fracture of the sternum and an anterior mediastinal hematoma, traumatic wet lung.

Following hospitalisation, he underwent a number of major and minor operations and was finally released from the hospital in China in June 2018. He was then repatriated to Poland for rehabilitation and by November 2018, he was reported to be able to walk again unaided.

Environmental conditions
At the time of the accident, the wind was from the Northeast (Force 2) and the sea was smooth. Air temperature was 17 °C and the sea temperature was recorded at 12 °C.

ANALYSIS

Aim
The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, to prevent further marine casualties or incidents from occurring in the future.

Fatigue and alcohol
Evidence suggested that the crew members were well rested, having also taken frequent rest breaks throughout the day. In addition, reports did not suggest that alcohol or drugs could have contributed to the accident. Therefore, on this basis, neither fatigue nor alcohol was considered to have contributed to the accident.

Ship movements
Considering the weather conditions at the time of the accident, there were no reported movements of the ship and therefore these were not considered as contributing factors to the accident.

Immediate cause of the accident
The safety investigation concluded that the immediate cause of the accident was the crew member’s loss of balance in close proximity of an inadequate barrier system, leading to a fall from a height.

When AB-1 tugged the fire hose forcibly the second time for more slack, a length of the hose fell on him, and somehow caused the top protective railing to move upwards. As he lost his balance, he fell through the opening in the platform. There were a number of reasons why the railing failed:

i. the locking pin that would have locked the railing and prevent it from lifting upwards was never in place from the design stage of the ship (Figure 3), although it had been reported locked1;

ii. the intermediate railing between the platform floor and the top railing was never in place from the design stage of the ship (Figure 4); and

iii. an examination of the structure revealed that neither a locking pin nor an intermediate railing had been fitted since the vessel was brought into service in 20092.

It was estimated that the weight of one metre of pressurised hose was about 5.0 kgs. Therefore, even if between four and five metres of fire hose had toppled on AB-1, that would suggest a weight of between 20 kgs and 25 kgs - sufficient to either knock somebody off balance or for that person to instinctively move aside to avoid the falling weight.

1 It would appear that the crew members interpreted the term ‘locked’ as being in place, rather than secured.

2 This will be discussed further in the ‘Analysis’ part of the safety investigation report.
The height of the platform from the tank top was about 9.8 m. It was estimated that when he lost his final grip on the hose, the crew member fell from a height of about 4.7 m. The safety investigation was of the view that this instinct may have actually saved the life of AB-1 because the effective fall was from a lower height.

The landing platform
Normally these types of platforms are fitted on cargo vessels with fixed safety railings around the access platform. In the case of this vessel, the opening was not fitted with two horizontal railings (a top and intermediate railing).

This was, however, a necessity. Since Adam Asnyk was fitted with (movable) tween decks, the movable handrail and the missing intermediate bar were fitted for two main purposes, i.e., to provide access to crew members and stevedores to the tween decks pontoons or access oversized cargoes directly from the platform to the pontoons.

Risk Assessment
The crew members had carried out a risk assessment prior to the commencement of the job. They had identified the ascent from and the descent to the cargo hold as a hazard and rated it as a ‘very high risk’. The locking of the rails was identified as the control measure. As indicated elsewhere, the control measure was ineffective given that the locking mechanism had never been installed.

As indicated elsewhere, it would appear that the crew members’ interpretation of locked was for the handrail to rest in its cradle (Figure 3). This physical barrier must have been considered to be adequate enough even because there were no previous issues with it which would have suggested that (this) physical barrier system was unreliable, irrespective of the missing locking system.

Working at height
Although the pressure of water from the hose would have reached the sides of the cargo hold even from the tank top, the crew members deemed that the platform would be the best position from where to clean the cargo hold’s bulkheads. It is very probable that washing from the platform was considered to be a less strenuous physical

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3 This was considered to be a functional barrier system.
exercise, rather than going down the cargo hold to the tank top.

Working at a height, the crew members were not wearing a safety harness tethered to a strong point\(^4\). It was possible that this was due to two main reasons – the SMS did not make any reference to cleaning of the cargo hold from the platform and the work was nonetheless deemed safe enough to be undertaken from the cargo hold access platform without the need of a safety harness.

Moreover, the injured crew member was in a complex situation since they were handling a pressurised fire hose to wash the cargo hold. In the adopted position on the platform, the injured crew member had to handle the fire hose unassisted by the other crew member.

Since there was never the understanding that the cargo hold was to be washed from the platform, the weight and lack of flexibility of a charged fire hose had not been discussed during the toolbox meeting and therefore any related risks had not been identified.

**CONCLUSIONS**

1. The immediate cause of the accident was the crew member’s loss of balance, leading to a fall from a height;
2. The injured crew member tugged the fire hose forcibly for more slack and caused it to fall on him, leading to the top protective railing being dislodged in the process. This in turn caused him to lose his balance and he fell through the opening in the platform;
3. The locking pin that should have locked the railing and prevent it from lifting upwards had never been installed since the ship was designed and built in 2009;
4. The control measure identified in the risk assessment was ineffective given that the cargo hold was being cleaned from the platform rather than the cargo hold’s tank top;
5. The crew members were not wearing a safety harness tethered to a strong point;
6. In the adopted position on the platform, the injured crew member had to handle a charged fire hose unassisted by the other crew member;
7. The risks associated with the handling of a charged fire hose were not identified during the toolbox meeting.

**SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION\(^5\)**

During the course of the safety investigation, the Company took the following actions:

1. The S & Q Department, together with the Operation Department has compiled instructions to present a safe and correct way of preparation to clean / wash the cargo hold;
2. Securing pins have been installed on all removable handrails in way of the access platforms in order to ensure unintentional opening;
3. Existing instructions on working at height have been amended;
4. New and more comfortable lifelines and harnesses have been procured to replace the existing ones.

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\(^4\) This was considered to be protective barrier system.

\(^5\) Safety actions should not create a presumption of blame and/or liability.
### SHIP PARTICULARS

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<tr>
<th>Item</th>
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<tr>
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<td>Flag</td>
<td>Malta</td>
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<td>Managers</td>
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### VOYAGE PARTICULARS

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### MARINE OCCURRENCE INFORMATION

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<td>Classification of Occurrence</td>
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<td>Location of Occurrence</td>
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<td>Place on Board</td>
<td>Cargo hold</td>
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<td>Injuries / Fatalities</td>
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<td>Damage / Environmental Impact</td>
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<td>Voyage Segment</td>
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<td>External &amp; Internal Environment</td>
<td>Slight seas, Northeasterly Force 2 wind</td>
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