Report of investigation into fatal accident of an electrical engineer falling into sea from Hong Kong registered bulk carrier AMOY PROGRESS at Ningde City of Fujian, China on 30 May 2016.

The Hong Kong Special Administrative Region
Marine Department
Marine Accident Investigation Section

24 May 2019

Purpose of Investigation

The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department is to determine the circumstances and the causes of the incident with the aim of enhancing the safety of life at sea and avoiding similar incidents in future.

We are not intended to apportion blame or liability towards any particular organization or individual except so far as necessary to achieve the said purpose.

The MAISSPB has no involvement in any prosecution or disciplinary action that may be taken by the Marine Department resulting from this incident.

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1. Summary

1.1 At 0056 hours on 30 May 2016, a fatal accident happened on board the Hong Kong registered bulk carrier AMOY PROGRESS (the *vessel*) involving the death of an electrical engineer.

1.2 At about 1718 hours on 29 May 2016, the *vessel* moored alongside the quay at the No. 14 berth of Qingtuo at Ningde City of Fujian, China to unload nickel ore bulk cargo.

1.3 From 1830 to 1900 hours, ten crew including the electrical engineer, No.1 oiler and engine cadet went for shore leave.

1.4 There were two crew on security watch at the shipboard access point on main deck to prevent unauthorized access to the *vessel*. At about 0056 hours on 30 May 2016, No.1 oiler and engine cadet returned to the *vessel* and they were drunk. The crew on security watch assisted them to board the *vessel* and helped them back to their cabins. The access point was therefore left unattended. Nobody was aware of the electrical engineer who was about 5 to 6 metres behind the No.1 oiler and the engine cadet.

1.5 The electrical engineer intended to board the *vessel* by taking a shortcut in an attempt to climb to the upper platform of the accommodation ladder at main deck level from the quayside. The height between the upper platform and the quayside was about 1.5 metres. However, he failed to land on the upper platform and fell into the sea unnoticed.

1.6 The missing of the electrical officer was perceived after daybreak. A search was conducted till noon but without any finding. On 2 June 2016, the body of the electrical engineer was found at sea in the vicinity of the quay. He was certified dead.

1.7 The investigation found that, perhaps under the influence of alcohol, the electrical engineer took an improper route to board the *vessel* by climbing directly from the quayside to the upper platform of the accommodation ladder instead of walking on the accommodation ladder. Consequently, he lost his balance and fell into sea and drowned.

1.8 The investigation also observed that the shipboard Safety Management System and the Ship Security Plan had not been implemented effectively as follows:-

(a) safety net was not rigged to cover the entire length of the accommodation ladder; and

(b) the gangway had not been manned at all times in accordance with the Ship Security Plan. As a result, the attempted climb and the fall of the electrical engineer were unnoticed.

2. Description of the vessel

2.1 The *vessel* (Figure 1)

Port of Registry	:	Hong Kong
Flag	:	Hong Kong, China
IMO Number	:	9583641
Type of vessel	:	Bulk carrier
Year built, shipyard	:	2010, Xiamen Shipping Industry Co. Ltd
Length overall	:	189.99 metres
Breadth	:	32.26 metres
Gross tonnage	:	33,044
Net tonnage	:	19,231
Propulsion engine	:	Hyundai Man B&W 6S50MC-C7 MCR 9480kW
Classification society	:	Bureau Veritas
Management company	:	Amoysailing Maritime Co. Ltd
Number of crew	:	23

Figure 1: The *vessel*

3. Sources of evidence

3.1 The accident investigation report from the Management Company.

3.2 Statements from crew.

4. Outline of events

(All times were local time GMT + 8 hours)

4.1 At 1718 hours on 29 May 2016, the Hong Kong registered bulk carrier AMOY PROGRESS (the *vessel*) berthed alongside the quay at the No. 14 berth of Qingtuo, at Ningde city of Fujian, China. At 1850 hours, cargo unloading operation commenced.

4.2 The weather was intermittent drizzle and the tidal range was considerable. The crew on ganyway security watch had to closely monitor and adjust frequently the mooring ropes to maintain the ship's position during the cargo unloading operation.

4.3 The gangway security watch log revealed that ten crew left the *vessel* for shore leave from 1830 hours to 1900 hours. According to crew statements, seven crew consumed three bottles of white spirit and two crew drank beer at a restaurant ashore. Each bottle of white spirit was 450 millilitres (ml) of 50% alcohol by volume. The electrical engineer had drunk about 40ml white spirit but he was not drunk as observed by other crew.

4.4 At about 0056 hours on 30 May 2016, the No.1 oiler and the engine cadet returned to the *vessel*. When the No.1 oiler and the engine cadet arrived at the lower platform of the accommodation ladder on the quayside, the crew on security watch observed that the No.1 oiler and the engine cadet were drunk. The crew assisted them to board the *vessel* and help them back to their cabins. As such, the access point was left unattended. None of the crew was aware of the electrical engineer who was about 5 to 6 metres behind the No.1 oiler and the engine cadet.

4.5 At 0900 hours, the electrical engineer did not report duty. The master perceived of his missing and ordered the crew to conduct a shipboard search but there was no finding.

4.6 At 1400 hour, the chief officer together with No.1 oiler and the engine cadet checked the terminal surveillance recording system at the port office, with the finding that the electrical engineer fell into the sea at about 0056 hours on 30 May 2016.

4.7 As shown by the surveillance footage, the electrical engineer tried to board the *vessel* by attempting to climb to the upper platform of the accommodation ladder at main deck level from the quayside. The height between the upper platform and the quayside was about 1.5 metres. In the process of the climb, the electrical engineer placed his hands to hold the edge of the platform. His left foot then stepped on the "*aft spring line 2*", followed by his right foot stepping on the "*aft spring line 1*" (Reference to Figure 2). Suddenly the *"aft spring line 1"* slid thus causing the electrical engineer lost his balance

and fell. He failed to grip anything in the fall and dropped into the sea.

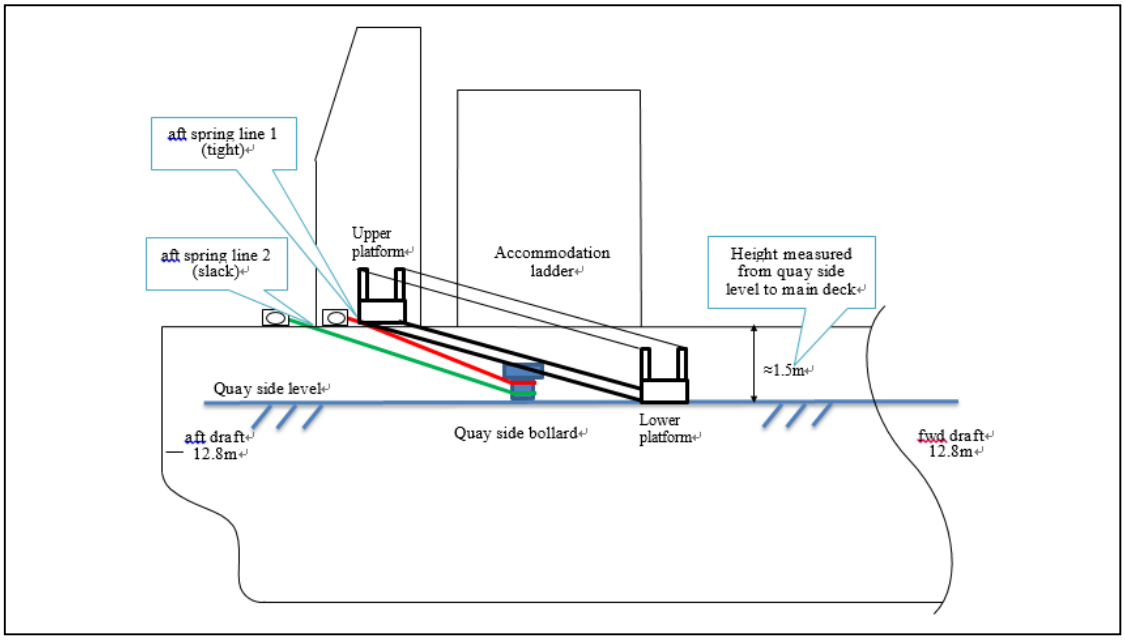

Figure 2: Two aft spring lines

4.8 As the climb and the fall of the electrical engineer happened for about 13 seconds, no one noticed the accident.

4.9 After the accident was revealed by the surveillance footage, Fujian Ningde Maritime Safety Administration carried out the search and rescue (SAR) operation by deploying two patrol boats to search the sea area from 1700 to 1900 hours but without any findings.

4.10 On 2 June 2016, the dead body of the electrical engineer was found in the sea nearby the quay.

5. Analysis

Ship's manning and certification

5.1 The *vessel* was manned by a total of 23 crew of Chinese nationality. All officers on board were experienced seafarers and possessed valid certificates of competency and respective Hong Kong licences.

5.2 The electrical engineer was 31 years old. He had a post-secondary education and received training in electrical engineering. His seafarer's identity document showed that he had more than five years of sea going experience as an electrical engineer. He joined the *vessel* on 18 May 2015.

Fatigue, alcohol and drugs abuse

5.3 According to the onboard record of hours of work and rest, the electrical engineer worked for eight hours a day from 0800 hours to 1600 hours and rested for sixteen hours with overtime work occasionally. There was no proof that fatigue had led to the cause of the incident.

5.4 There was no record of drug or alcohol abuse onboard. The latest alcohol test was recorded on 24 May 2016 before arriving Ningde port. There was also no sign of personal problem or abnormal behavior of the electrical engineer as observed by the crew.

5.5 The company policy, as stipulated in the Safety Management System (SMS), is that duty crew should not consume alcohol four hours before duty. The blood alcohol content should not exceed 40 milligrams per 100 ml.

5.6 Although there was no company policy on the control of alcohol consumption during shore leave, crew had been advised to be self-disciplined.

5.7 At the material time, the electrical engineer returned back to the *vessel* alone at a few metres behind the No.1 oiler and the engine cadet after consumption of alcohol ashore. Although the electrical engineer consumed about 40 ml of white spirit, his colleagues stated that he had no sign of being drunk. The investigation revealed that as the crew on security watch focused on assisting the drunken No.1 oiler and the engine cadet to board the *vessel*, they did not notice the presence of the electrical engineer.

5.8 Instead of using the accommodation ladder which was the proper means to board the *vessel*, the electrical engineer decided to take the shortcut route to reach the upper platform of the accommodation ladder by climbing through the spring lines. It was believed that perhaps under the influence of alcohol, the electrical engineer had underestimated the risk of falling.

5.9 The consumption of alcohol and its negative effect to the electrical engineer was

believed to be the crucial element leading to his abnormal behavior causing the resulting incident.

Weather and sea conditions

5.10 At the time of the incident, the weather was fair with Beaufort force 3 wind. The state of sea was calm with slight swell. The visibility was good.

Analysis of the fall

5.11 There were two aft spring lines (fiber ropes) running between the bollards at the *vessel*'s main deck and the quay. The cargo operation and ship movement caused these spring lines stretching from time to time. Initially, one of the aft spring lines was in tension as it was stuck underneath the upper platform of the accommodation ladder. The other one was in slack condition. While the electrical engineer was stepping on these two spring lines, the tensioned spring line was released suddenly from its stuck position and the swinging effect had caused the electrical engineer to lose his balance resulting in falling into the sea.

5.12 Near the stern of the *vessel*, there was a large gap between the vessel's hull and the quay where an accommodation ladder as the means of ship access was situated across the gap. There was no safety net rigged under the whole length of the accommodation ladder including the upper platform to protect person against falling from the ladder into the sea. Although the electrical engineer bypassed the accommodation ladder by climbing through the spring lines at the material time, he might have the chance to grab the mesh of the safety net or be tangled with the safety net in the fall should a net be fitted and this might have saved his life.

5.13 The crew on security watch assisted the drunken No.1 oiler and engine cadet to board the *vessel* and helped them return to their cabins. At the material time, there was nobody attending the gangway watch and no one spotted and stopped the electrical engineer from climbing up to the upper platform of the accommodation ladder.

Implementation of the shipboard Safety Management System (SMS) and the Ship Security Plan (SSP)

5.14 The *vessel*'s SMS adopts the Code of Safe Working Practices for Merchant Seafarers[1], section 22.3 of which states —

> "--- *Where there is a risk of a person falling from the access equipment or from the quayside or ship's deck adjacent to the access equipment, a safety net must be*

[1] Code of Safe Working Practices for Merchant Seafarers 2015 edition – Incorporating Amendment 1, October 2016

mounted where reasonably practicable. The aim of safety nets is to minimize the risk of injury arising from falling between the ship and the quay or falling on the quay, deck or between two vessels. As far as is reasonably practicable, the whole length of the means of access should be covered. Safety nets should be securely rigged, with use being made of attachment points on the quayside where appropriate."

5.15 Considering the gap between the quay and the stern hull of the *vessel*, safety net should be mounted to cover the whole length of the accommodation ladder in order to protect person from falling. However, there was no safety net provided for the accommodation ladder. It was so evident that the SMS had not been implemented effectively in respect of safe working practices.

5.16 The SMS did not provide any guideline for consumption of alcohol during shore leave. After the incident, the management company had developed the policy of alcohol consumption during shore leave, i.e. "*no alcohol consumption is abused for shore leave by all crew during their service duration*". A circular promulgating the policy was issued to the fleet and it would be incorporated into the SMS manual in the next management review of the SMS.

5.17 According to the shipboard SSP, the *vessel*'s access control points should always be manned during port stay (such as berthing and at anchorage) in order to prohibit any unauthorized access to the vessel. At the time of the incident, the crew on security watch had left the access point unattended. The security measures for the prevention of unauthorized access to the *vessel* had not been implemented effectively.

6. Conclusions

6.1 At 0056 hours on 30 May 2016, a fatal accident happened to an electrical engineer of Hong Kong registered bulk carrier alongside the quay of Qingtuo at Ningde City of Fujian, China.

6.2 The investigation found that, perhaps under the influence of alcohol, the electrical engineer took an improper route to board the *vessel* by climbing directly from the quayside to the upper platform of the accommodation ladder instead of walking on the accommodation ladder. Consequently, he lost his balance, fell into sea and was drowned.

6.3 The investigation also observed that the shipboard Safety Management System and the Ship Security Plan had not been implemented effectively, as follows:-

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(b) the gangway had not been manned at all times in accordance with the Ship Security Plan. As a result, the attempted climb and the fall of the electrical engineer were unnoticed.

7. Recommendations

7.1 The Management Company of the *vessel* should inform all crew of the findings of investigation, and provide proper training to the crew to ensure their compliance with the requirements and procedures of the SMS and SSP for the particular areas as follows:-

(a) safety net should always be rigged properly to cover the entire length of the accommodation ladder between the ship and the quay to minimize the risk of injury from falling;

(b) to reiterate the consequences of alcohol consumption during shore leave as the policy/guidelines in the SMS; and

(c) to ensure the manning of access control points all the time during port stay period.

7.2 To issue Hong Kong Merchant Shipping Information Note to promulgate the lessons learnt from the accident.

8. Submission

8.1 The draft report was sent to the following parties for their comments:

(a) Management Company and master of the *vessel*.

(b) Ship Safety Branch of the Marine Department.

8.2 By the end of the consultation, there was no comment received from the company and the Ship Safety Branch of the Marine Department.