# Report of investigation into the fatal accident on board the Hong Kong registered bulk carrier "Simon Brother" at Kavieng, Papua New Guinea on 1 May 2021

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

18 February 2022

## Purpose of Investigation

The purpose of this investigation, conducted by the Marine Accident Investigation Branch (MAIB) 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.

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

The MAIB 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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## Summary

On 1 May 2021, Hong Kong registered bulk carrier "Simon Brother" (*the vessel*) anchored at the anchorage of the port of Kavieng, the Independent State of Papua New Guinea (PNG) for port formalities and the securing operation of the log cargoes loaded on deck (the securing operation).

At 0830 hours, the crew members of *the vessel* commenced the securing operation on deck. At around 0955 hours, an able bodied seaman (AB1) and a deck Fitter (Fitter) noticed the hoisting wire of the No. 1 crane jammed with the hook block (the block). Without informing the chief officer (the C/O), the AB1 and the Fitter attempted to check the block and its hoisting wire on the top level of the uneven logs. Suddenly, the block was shifted and rotated during their inspection. The sudden movement of the block caused the taut wiggle wire to move abruptly, resulting in the AB1 and the Fitter being struck into the sea from the top of the log cargoes. The Fitter was conscious but the AB1 was observed with his face submerged after falling into the water. A Cardiopulmonary Resuscitation (CPR) was performed on the AB1 immediately upon rescued. Unfortunately, at 1258 hours on the same day, the AB1 was declared dead on board by the shore Health Extension Officer (HEO).

The investigation had identified the following contributory factors of this accident: the toolbox talk was not conducted on board before the securing operation in accordance with the requirements of the Shipboard Management System (SMS); the crew members failed to follow the requirements of the Code of Safe Working Practices for Merchant Seafarers[1] (*the Code*) to rig suitable safety nets or temporary fencing while carrying out the securing operation on top of the deck cargoes; the AB1 and the Fitter had inadequate safety awareness and underestimated the risk of unexpected freeing of the jammed wire during the inspection of the wiggle wire lashing system; the crew members failed to follow the requirements of the shipboard Cargo Securing Manual (CSM) to carry out the securing operation; the shipboard training to crew members in the securing operation of the cargoes was

[1] "Code of Safe Working Practices for Merchant Seafarers" is a publication required to be carried onboard Hong Kong ships pursuant to the Merchant Shipping (Seafarers) (Code of Safe Working Practices) Regulation (Cap. 478M).

ineffective.

The investigation also revealed that the risk of the securing operation was not covered in the shipboard Risk Assessment Manual (RAM) of the SMS, and the CSM did not update to meet the requirements of the Code of Safe Practice for Ships Carrying Timber Deck Cargoes, 2011 (2011 TDC Code)[2].

[2] Code of Safe Practice for Ships Carrying Timber Deck Cargoes, 2011 was adopted by the International Maritime Organization on 30 November 2011

## 1. Description of the vessel

| | | |
|---|---|---|
| Ship name | : | *Simon Brother* (Figure 1) |
| Flag | : | Hong Kong, China |
| Port of registry | : | Hong Kong |
| IMO number | : | 9237383 |
| Type | : | Bulk Carrier |
| Year built, shipyard | : | 2000, Imabari Shipbuilding Co., Ltd. (Japan) |
| Gross tonnage | : | 16,963 |
| Net tonnage | : | 10,498 |
| Summer deadweight | : | 28,463 tonnes |
| Length overall | : | 169.26 metres |
| Breadth | : | 27.20 metres |
| Engine power, type | : | 5,850 kW, MAKITA-MITSUI-MAN B&W 6S42MC (Mark VI) |
| Classification society | : | Nippon Kaiji Kyokai |
| Registered owner | : | Hongkong Yamtai Investment Co., Limited |
| Management company | : | Shenzhen Shekou Shipping & Transportation Co., Ltd. |


Figure 1 *The vessel*

## 2. Sources of evidence

2.1 Information provided by the Master, the crew and the management company (the Company) of *the vessel*.

## 3. Outline of events

(All times were local time UTC + 10 hours.)

3.1 At 0745 hours on 1 May 2021, *the vessel* anchored at the anchorage of the port of Kavieng, *PNG*, awaiting port clearance.

3.2 At 0830 hours, the securing operation was carried out on deck by 2 teams of crew members.

3.3 At around 0955 hours, a cargo securing team consisted of 8 crew members, including the AB1 and the Fitter, equipped with safety helmets, gloves, safety shoes and working clothes, finished securing the deck log cargoes (the cargoes) on top of the No.2 hatch. Afterwards, the AB1 and the Fitter observed that part of the hoisting wire was slack and jammed at the gap between the side plate and the sheave of the hook block of the No.1 crane.

3.4 Without informing the C/O, the AB1 and the Fitter approached the block to check when they noticed that the hoisting wire guided by the sheave on one end of the block was slack, and the other end was taut.

3.5 The block was shifted and rotated suddenly on the top level of the uneven cargoes during their inspection, causing the taut wiggle wire to move abruptly. The AB1 and the Fitter were struck into the sea by the released stored energy of the wiggle wire. The Fitter was conscious, and the AB1 was observed struggling to swim with his face submerged in the water for a short while.

3.6 At 0956 hours, the Master of *the vessel* was informed of the accident and organized the rescue operation. The crew members threw 3 lifebuoys to the water, and the AB2 jumped into the sea and swam towards the AB1. Later on, the Fitter and the AB2 managed to move the head of AB1 out of the water and placed it on a lifebuoy but he was found unconscious.

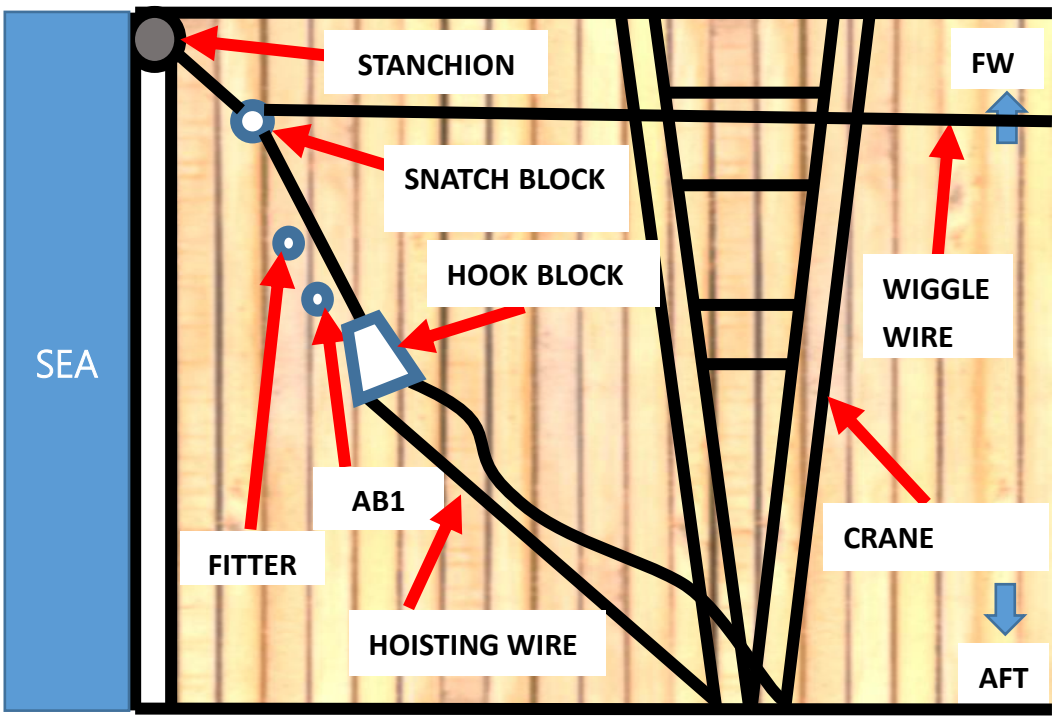


Figure 2 Approximate configuration of the securing arrangement and position of the AB1 and the Fitter

3.7 At 1000 hours, the Master of *the vessel* reported the accident to the Company and contacted Kavieng Port Authority by VHF radio for arranging emergency medical treatment.

3.8 The crew members pulled the AB1 from the water back onboard with a rope and immediately performed CPR on him, but he was still unconscious with no breathing and heartbeat.

3.9 At 1226 hours, the local agent, Quarantine Officer and HEO arrived. The HEO examined the AB1 and confirmed the AB1 was dead at 1258 hours on the same day.

## 4. Analysis

### *Certification and experience of the crew*

4.1 The statutory trading certificates of *the vessel* were valid and in order. *The vessel* was manned by 24 crew members, including the Master.

4.2 The Master joined *the vessel* on 13 October 2020. He had about 12 years of experience as a master. He possessed a Master Certificate of Competency issued by the Government of the People's Republic of China valid until 13 March 2024 and held a Class 1 Licence (Deck Officer) issued by the HKMD on 5 October 2020.

4.3 The Chief Officer joined *the vessel* on 04 February 2021. He had about 5 years of experience as a chief officer. He possessed a Class 2 Certificate of Competency issued by the Government of the People's Republic of China valid until 11 August 2021 and held a valid Class 2 Licence (Deck Officer) issued by the HKMD on 11 March 2021.

4.4 The AB1 joined *the vessel* on 04 February 2021. He had about 3 months of experience as an able bodied seaman. He possessed a Certificate of Proficiency issued by the Government of the People's Republic of China valid until 2 August 2049.

4.5 The Fitter joined *the vessel* on 4 February 2021. He had about 3 months of experience as a deck fitter.

4.6 There were no abnormalities noted with regard to the certification and experience of the crew members concerned.

### *Fatigue, alcohol, and drugs abuse*

4.7 There was no evidence to show that any crew members involved in the accident, including the AB1, suffered from either fatigue at work or abuse of alcohol or drugs.

***Weather and sea condition***

4.8 At the time of the accident, the weather was partly cloudy with northwesterly wind force 3 on Beaufort Wind Scale with gentle breeze and smooth sea. The visibility was good, about 5 to 11 nautical miles. Weather and sea conditions should not be the contributory factors to the accident.

***Post Mortem Examination***

4.9 The Coroner's Autopsy Report stated that there were large areas of bruises on the left thigh and left leg of AB1. His mandible jaw bone was fractured and the left temporal portion of the scalp was bruised. Bleeding was found within the subarachnoid space with evidence of brain swelling. His upper lobes of both sides of his lungs were also bruised.

4.10 The Coroner's Autopsy Report also stated that the direct cause leading to the death of the AB1 was acute subarachnoid hemorrhage due to blunt force trauma to head, and the contributory factor was drowning by inhalation of a large amount of water. The above showed that the body of AB1 was likely struck by the wiggle wire or hook block with his head possibly hitting the ship structure or objects before falling into the sea.

***Supervision of the securing operation of the deck log cargoes***

4.11 Section 4.2 of Chapter 2-15, "Quality assurance of goods in carrier", of the shipboard Operation Manual of *the vessel* states that the C/O is responsible for the cargo loading, unloading, and securing operation.

4.12 However, neither the C/O carried out a toolbox talk before commencing the securing operation of the cargoes, nor the AB1 and the Fitter reported to the C/O when the hoisting wire jammed in the block of the No.1 crane which was connected to the wiggle wire of the No.2 hatch. The fatal accident might be avoided if the requirements of the SMS were strictly followed.

***Personal protection for work safety***

4.13 Chapter 28.1.8 of *the Code* states that *suitable safety nets or temporary fencing should be rigged where personnel have to walk or climb across built-up cargo and are therefore at risk of falling*. However, there was no such protection arranged when the crew members carried out the securing operation on the top level of the cargoes on deck.

4.14 The autopsy report described that the direct cause of death of the AB1 was due to blunt force trauma to the head. It was deduced that the blunt objects hit the AB1's head while he was falling to the sea. Therefore, the crew members did not strictly follow the requirements of *the Code,* which is a contributory factor to the accident.

***Safety awareness of the cargo securing operation***

4.15 Chapter 19.9.19 of *the Code* states that *before any attempt to free equipment that has become jammed under load, every effort should first be made to take the load off safely. Precautions should be taken to guard against sudden or unexpected freeing. Others not directly engaged in the operation should keep in safe or protected positions*.

4.16 When the AB1 and the Fitter noticed the hoisting wire being entangled in the gap between the side plate and the sheave of the block of the No.1 crane, they did not take the precautionary work before checking. They also stood close to a stressed wire and put themselves at risk of the unexpected freeing of the load. The investigation revealed that the AB1 and the Fitter did not have sufficient safety awareness of the cargo securing operation and did not strictly followed the requirements of *the Code*.

***Securing of the deck log cargoes***

4.17 Chapter 28.1.7, the *Code* states the *timber cargo decks shall be secured throughout the voyage in accordance with the requirements of Chapter 1.2.2 of the 2011 TDC Code*. The 2011 TDC Code states also that cargo securing of timber deck cargoes should follow the requirements of the shipboard CSM.

4.18 A "Lumber Loading Plan" (LLP) was included in the CSM to show the securing layout and arrangement for deck log cargoes (Figure 3). The LLP indicated that the wiggle wire lashings required a number of foot wires shackled to deck eye plates on both sides of the deck with another end attached to a snatch block to allow the wiggle wire to run through side by side above the cargoes in a zig-zag manner. Occasionally, some foot wires are required to connect to the snatch blocks by a turn buckle. Turn buckles are also required to secure both ends of the wiggle wire to a deck fitting. The wiggle wires were to be tightened by applying load onto it before the wire rope clips were used to secure the wiggle wire in position.

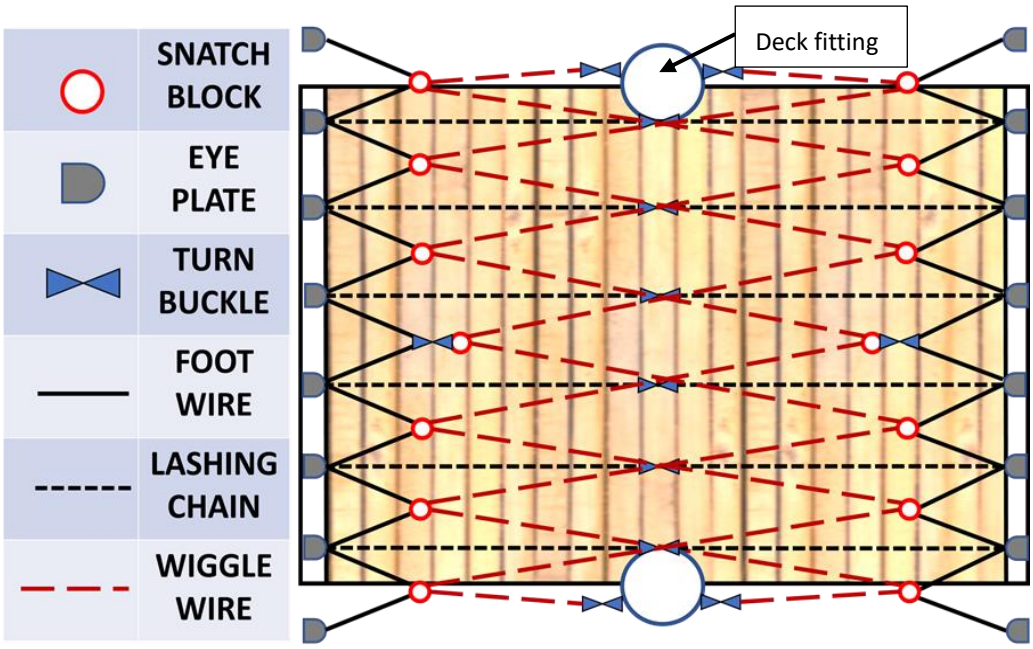


Figure 3 Simplified sketch of the securing layout on top of *the* deck log *cargoes* with reference to the CSM

4.19 However, at the time of the accident, one of the wiggle wires of the No.2 hatch was taken load by the hoisting block of the No.1 crane. Such wiggle wire was neither secured in position by wire rope clips nor secured to the deck fitting with a turn buckle (Figure 2), thus failing to follow the requirements of the CSM.

***Shipboard training***

4.20 Under the "Documentation of Procedure" of the shipboard SMS, section 3.1.2 (6) of Chapter 3 of the "Training Procedure" requires to

conduct the training of crew members to improve skill and ability according to the approved annual training plan.

4.21 The approved SMS training plan of 2021 indicates that the "Securing Manual" training should be carried out monthly. According to the shipboard training record, all crew members attended monthly training since joining the ship, including the AB1 and the Fitter.

4.22 Notwithstanding the "Securing Manual" training was held monthly, the evidences of paragraphs 4.12, 4.14, 4.16 and 4.19 showed that the shipboard training in the securing operation of the cargoes was ineffective. If the crew members could be trained well on the cargo securing onboard and familiarize with the relevant requirements of *the Code*, it might prevent the accident from happening.

***Shipboard Cargo Securing Manual and Risk Assessment Manual***

4.23 Chapter 4.2.6.b.3 of the shipboard CSM states that the wiggle wire system of lashing aboard *the vessel* is not recommended because *the vessel* did not fit with independent winches between hatches for the securing operation.

4.24 The shipboard RAM states that the possible risks of shipboard activities and measures taken should be assessed according to the Appendix of the shipboard CSM.

4.25 To secure the uneven deck log cargoes with the wiggle wire system without the independent winches is inherently a hazardous operation and has a potential risk. Unfortunately, the contents of risk activities in the shipboard RAM did not cover the securing operation with the wiggle wire system. Otherwise, the crew members might carry out a risk assessment before commencing the securing operation and the accident might be avoided.

4.26 The investigation also identified that Chapter 4.2.6 (b) of the shipboard CSM regarding the cargo securing arrangements still referred to an outdated Code, i.e., "Code of Safe Practices for Ships carrying Timber Deck Cargoes, 1991" instead of the 2011 TDC Code which was effected on 30 November 2011.

***Actions taken by the company after the accident***

4.27 After the accident, the Company has taken the following actions requiring:

(i) the C/O to complete the form of "Log on deck lashing plan" and carry out training to crew members before securing operation on deck as required by Section 5.4.4.2 of Chapter 02-15, "Quality assurance of goods in carrier" of the shipboard Operation Manual;

(ii) the C/O to complete the "Voyage loading and unloading plan and safe operation checklist" in the log voyage in Section 5.1 of Chapter 02-07, "Regulations for cargo handling operation" of the shipboard Operation Manual before commencing cargo operation;

(iii) the C/O to brief crew members on the requirements of personal protective equipment, cargo characteristics, loading and unloading, potential risks and precautions of the operations of the cargoes before commencing cargo operation;

(iv) the person in charge of shipboard operations to complete the form of "Ship labor operation checklist" stated in the Section 6 of Chapter 02-15, "Quality assurance of goods in carrier" of the shipboard Operation Manual; and

(v) new documents of "Logs/Timber handling process and precautions" and "Plan for Lashing/Securing the Logs on Deck" to be added to the SMS as an Appendix to specify the precautions during the cargo handling/securing process and to provide a procedural plan for lashing/securing of deck log cargoes.

4.28 On 8 May 2021, the Company issued a circular letter to all masters, officers, and crew members of its fleet to learn from the lessons of the fatal accident of *the vessel* and inform them of the precautions and risks of the securing operations of cargoes, etc.

## 5. Conclusions

5.1 On 1 May 2021, a fatal accident happened on board *the vessel* at Kavieng, *PNG*. At around 0955 hours when the crew members carried out the securing operation, the AB1 and the Fitter noticed that the hoisting wire of the No.1 crane jammed with the block. When inspecting the problem, the block suddenly rotated and caused the taut wiggle wire to move. Both AB1 and the Fitter were struck overboard by the wiggle wire because of the unexpected freeing of the load. The Fitter was conscious, and the AB1 was observed with his face submerged in the water. Rescue operation was organized on board immediately. The rescue team pulled the AB1 from the water back onboard using a rope with assistance from the Fitter and the AB2 at sea. Despite the CPR being performed on the AB1 immediately upon rescued, unfortunately, at 1258 hours on the same day, the AB1 was declared dead on board by the HEO.

5.2 The investigation identified the contributory factors leading to this accident were as follows:

(a) toolbox talk was not conducted on board before the securing operation of the cargoes in accordance with the requirements of the shipboard SMS before commencing the securing operation of the cargoes on deck;

(b) the crew members failed to follow the requirement of *the Code* to rig suitable safety nets or temporary fencing while carrying out the securing operation on top of the deck cargoes;

(c) the AB1 and the Fitter had inadequate safety awareness and underestimated the risk of unexpected freeing of the jammed wire during the inspection of the wiggle wire lashing system;

(d) the crew members failed to follow the requirements of the shipboard CSM to carry out the securing operation of the cargoes; and

(e) the shipboard training in the securing operation of the cargoes was ineffective.

5.3 The investigation also revealed that the risk of the securing operation was not covered in the shipboard RAM, and the CSM was not updated to meet the requirements of the 2011 TDC Code.

## 6. Recommendations

6.1 The management company should issue circulars informing all Masters, officers, and crew members of its fleet of the findings of the investigation and the lessons learnt from this accident and instruct them to:

(a) ensure the supervisor of the securing operation of the cargoes to follow the shipboard SMS to carry out toolbox talk and risk assessment before commencing any securing operation on deck;

(b) ensure the crew members to strictly follow the requirements of *the Code* in rigging suitable safety nets or temporary fencing while carrying out the securing operation on top of the deck cargoes;

(c) enhance safety awareness and safety culture onboard to ensure that the crew members keep themselves in a safe or protected position against the unexpected freeing of the jammed equipment under load;

(d) ensure the crew members to strictly follow the requirements of the CSM in the securing operation of the cargoes on board; and

(e) enhance the shipboard safe operation training for the key operations, especially when carrying out the securing operation.

6.2 The Company should conduct an internal audit on *the vessel* to verify the shipboard CSM to meet the requirements of *the Code* and the shipboard RAM to cover the shipboard key operation of the securing operation. The internal audit should also ensure that the crew members follow the safety requirements strictly when handling the securing operation of the cargoes on deck and shipboard training is carried out effectively.

6.3 A Hong Kong Merchant Shipping Information Note is to be issued to promulgate the lessons learnt from this accident.

## 7. Submission

7.1 The draft investigation report, in its entirety, was sent to the management company and the Master of *the vessel* for their comments.

7.2 By the end of consultation, there was no comment received from the above-mentioned parties.