# Report of investigation into the fatal accident on board the Hong Kong registered bulk carrier "*Victoria Harbour*" at Kwangyang, South Korea on 16 June 2020


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

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## 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**

At about 0810 hours on 16 June 2020, a fatal accident happened on board the Hong Kong registered bulk carrier "Victoria Harbour" (*the vessel*) when she anchored at the outside port limits anchorage of Kwangyang, South Korea to carry out lifting operation.

In the accident, an Able Bodied Seaman was assigned to assist lifting out the garbage drum with copper concentrate from No.2 cargo hold. The Able Bodied Seaman on main deck port side beside the cargo hold longitudinal hatch coaming was handling a tag line secured on the hook of the crane to act against any swaying motion of the hook when the garbage drum was lifting out from the cargo hold.

When the garbage drum was lifted up to about a metre above the hatch coaming, the crane driver slewed the crane to transfer the garbage drum to the starboard side. During the process, the Able Bodied Seaman suddenly shouted, and then he was hauled by the tag line and flied off sideways across the cargo hold to starboard side. He bumped on the starboard side shell web frame of No. 2 cargo hold and dropped to the bottom. Despite the Able Bodied Seaman was evacuated by the rescue helicopter to the shore hospital for emergency medical treatment, he was declared dead before arriving at the hospital.

The investigation revealed that the main contributory factors causing the accident were that the risk assessment and planning of the lifting operation did not meet the requirements as stated in paragraph 19.9.1 of the Code of Safe Working Practices for Merchant Seafarers (the Code); effective communication among the lifting team members was not established; on-site supervision was inadequate; and training on lifting operation and safety awareness of the lifting team were inadequate.

## 1. Description of the vessel

| | | |
|---|---|---|
| Ship name | : | *Victoria Harbour* (Figure 1) |
| Flag | : | Hong Kong, China |
| Port of registry | : | Hong Kong |
| IMO number | : | 9589229 |
| Type | : | Bulker carrier |
| Year built, shipyard | : | 2010, Yangzhou Nakanishi Shipbuilding Co, Ltd |
| Gross tonnage | : | 18,465 |
| Net tonnage | : | 10,365 |
| Summer deadweight | : | 29,094 tonnes |
| Length overall | : | 164.1 metres |
| Breadth | : | 27.01 metres |
| Engine power, type | : | 5,730 kW, MAN B&W 5S50MC |
| Classification society | : | Lloyd's Register |
| Registered owner | : | Hope Bulkship S.A. |
| Management company | : | Wealth Ocean Ship Management (Shanghai) Co., Ltd |

Figure 1 *The vessel*

## 2. Sources of evidence

2.1 The information provided by the crew and the management company of *the vessel* (the Company).

## 3. Outline of events

(All times were local time UTC +9 hours)

3.1 At 0804 hours on 14 June 2020, *the vessel* arrived and anchored at the outside port limits anchorage of Gwangyang, South Korea for cargo hold cleaning and awaiting instruction from local agent to berth for cargo loading.

3.2 At 0700 hours on 16 June 2020, the local agent informed the Chief Officer that a pilot was arranged to board *the vessel* for berthing at 1800 hours on the same day. The cargo hold inspection would be carried out immediately after berthing before cargo loading could be permitted.

3.3 To prepare for the cargo hold inspection, the Chief Officer called Bosun at 0710 hours to organize all deck crew to empty cargo holds by lifting out the remaining garbage drums filled with cargo residue of copper concentrate collected from the latest cargo hold cleaning work. The crew was told to further clean up all cargo holds to ensure that the cargo hold inspection could be passed smoothly later.

3.4 At 0730 hours, deck crew comprising the Bosun, Able Bodied Seaman 1 (AB1), Able Bodied Seaman 2 (AB2) and Ordinary Seaman (OS) assembled on the main deck to prepare for the lifting operation and the subsequent cargo hold cleaning work.

3.5 The Chief Officer as a competent person in charge arrived on main deck to meet the deck crew to form a lifting team. The Chief Officer checked the personal protective equipment of the lifting team members and reminded them not to climb on cargo hold hatch coamings when handling tag lines in lifting. However, the Chief Officer did not hold toolbox meeting with lifting team members to discuss any potential hazards before proceeding the lifting operation. In the lifting, lifting team members used two ropes secured on the hook of the crane to act as tag lines for the members positioned on main deck port and starboard sides in order to prevent any swaying motion of the garbage drums. Only the Chief Officer and Bosun were equipped with portable radio for communication when the Bosun was in the crane cabin to control the crane.

3.6 At 0800 hours, the lifting team started the lifting work for No. 2 cargo

hold with the Bosun stayed in the crane cabin waiting for instructions. The OS stayed at cargo hold bottom to put the sling of the garbage drum to the hook. AB1 and AB2 on main deck besides the longitudinal hatch coaming port and starboard sides respectively were tasked to hold the tag lines (Figure 2). It was planned to place the garbage drum on the main deck starboard side.

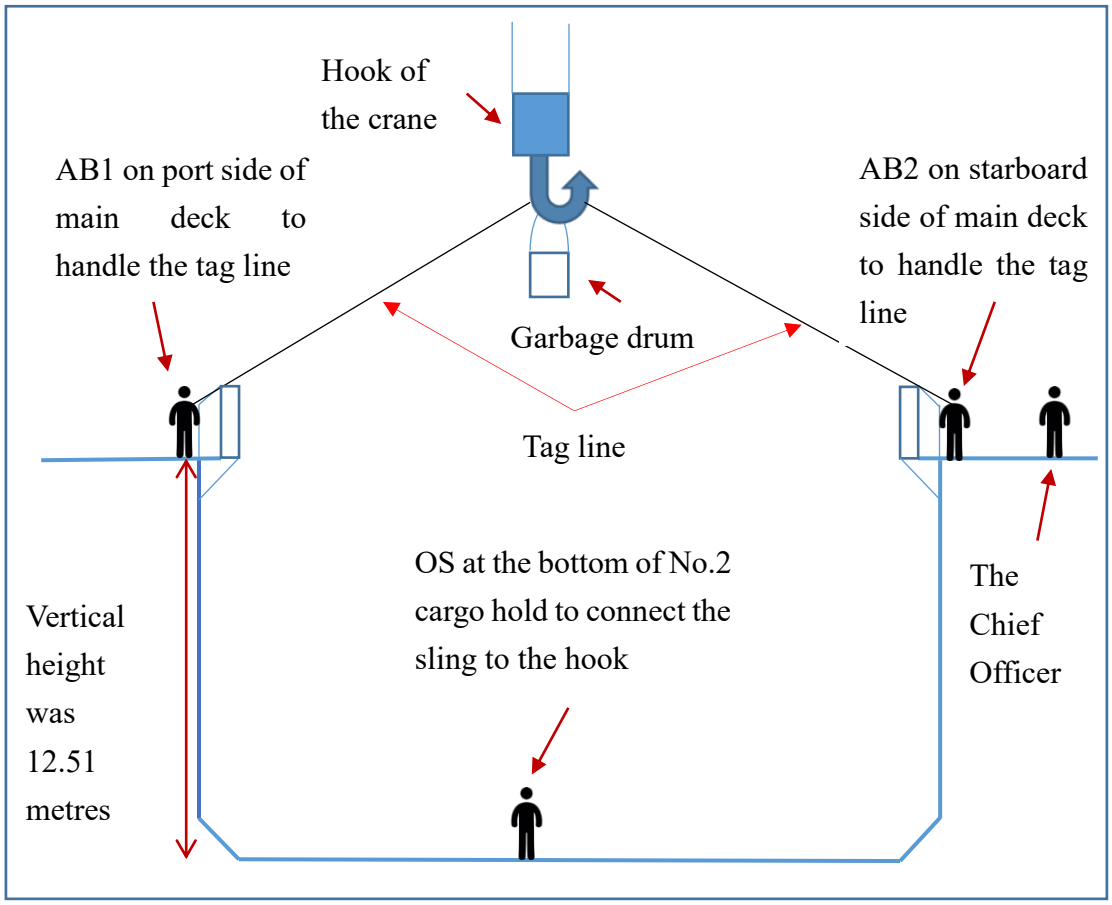


Figure 2 Diagram showing the positions of the lifting team members.

3.7 At 0806 hours, under the instructions of the Chief Officer, the Bosun drove the crane lifting up the garbage drum from No. 2 cargo hold. At the same time, AB1 and AB2 on the main deck were pulling their tag lines in order to prevent the garbage drum from swaying during lifting.

3.8 At about 0810 hours, the garbage drum was lifted up to about one metre above the hatch coaming and then moved towards the starboard by slewing the crane. AB1 stayed besides the port side longitudinal hatch coaming and his position was shadowed without being seen clearly from the starboard side. All of a sudden, AB1 shouted and others noticed him being hauled by the tag line flying from the port side to starboard side across No.2 cargo hold. Finally, AB1 bumped on

starboard side shell web frame of No. 2 cargo hold and fell to the cargo hold bottom.

3.9 The Chief Officer noticed the falling and immediately informed the Master through portable radio but without receiving any response. He then assigned AB2 going to bridge to report the accident to the Master directly.

3.10 The Chief Officer went to the bottom of No.2 cargo hold and checked the condition of AB1 who was unconscious and his pulse was weak. The first aids treatment was immediately applied to him.

3.11 At 0950 hours, the Korea Coast Guard officer and paramedic came on board *the vessel* and applied emergency medical treatment to AB1.

3.12 At 0955 hours, the rescue helicopter also arrived to evacuate AB1 to shore hospital for emergency medical treatment. However, AB1 was declared dead before arriving at the hospital at 1047 hours.

## 4. Analysis

### *Certification, training and experience*

4.1 The statutory trading certificates of *the vessel* were valid and in order. *The vessel* was manned by 20 crew members including the Master.

4.2 The Master had worked in the Company for about 1 week and joined *the vessel* on 10 June 2020. He had about 3 years' experience as master. He possessed a Class 1 Certificate of Competency issued by China valid until 13 April 2023.

4.3 The Chief Officer had worked in the Company for about 2 years and joined *the vessel* on 10 June 2020. He had more than 1 year's experience as chief officer. He possessed a Class 2 Certificate of Competency issued by China valid until 1 November 2023.

4.4 Bosun had worked in the Company for about 9 months and joined *the vessel* on 10 June 2020. He had about 4 years' experience as bosun.

4.5 AB1 had worked in the Company for about 1 week and joined *the vessel* on 10 June 2020. He had about 10 months' experience as able-bodied seaman.

4.6 AB2 had worked in the Company for about 1 week and joined *the vessel* on 10 June 2020. He had about 5 months' experience as able-bodied seaman.

4.7 OS had worked in the Company for about 10 months and joined *the vessel* on 10 June 2020. He had about 3 months' experience as ordinary seaman.

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

### *Weather and sea conditions*

4.9 The weather was sunny with westerly wind of Beaufort scale force 3. The sea was slight and calm. The visibility was about 7 nautical miles. The weather and sea conditions were not considered as contributory factors of the accident.

***Cause of death***

4.10 The certificate of death revealed that the cause of death was due to traumatic brain injury which was consistent with the accident of falling from height.

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

4.11 There was no evidence to suggest that any crew on board suffered from fatigue at work or abuse of alcohol and drugs.

***Probable cause of the accident***

4.12 No one witnessed the process of how AB1 had crossed over the portside longitudinal hatch coaming of 1.74 metres high (Figure 3) and fell to the cargo hold bottom. In accordance with OS's statement, he was at the cargo hold bottom watching the lifting and did not see anyone protruding from the top of portside longitudinal hatch coaming. However, OS noticed that the portside tag line was in tension and then at about 8 to 10 seconds later, he saw AB1 flying off sideways to the starboard side. OS's statement indicated that AB1 had been subjected to enormous pulling force in a flash.


Figure 3 Overview on port side main deck.

4.13 During the lifting operation, when the Bosun hoisted up garbage drum from the bottom of the cargo hold, both AB1 and AB2 could not see their tag lines relative to the connection of the hook or the garbage drum.

They could only feel the tag line tension and correspondingly release or tighten the lines as appropriate in order to prevent the drum from swinging. In the accident, AB1 might have no sufficient time or be lack of skill to control the tag line and keep the tag line clear from himself. It was likely that AB1 might fail to release the tag line in time or suddenly be tangled by the tag line when the latter was abruptly tensioned by the fast slewing crane without any warning. Consequently, AB1 was hauled by the tag line resulting in pulling him over the portside longitudinal hatch coaming and subsequently falling down to the cargo hold bottom. (Figure 4)

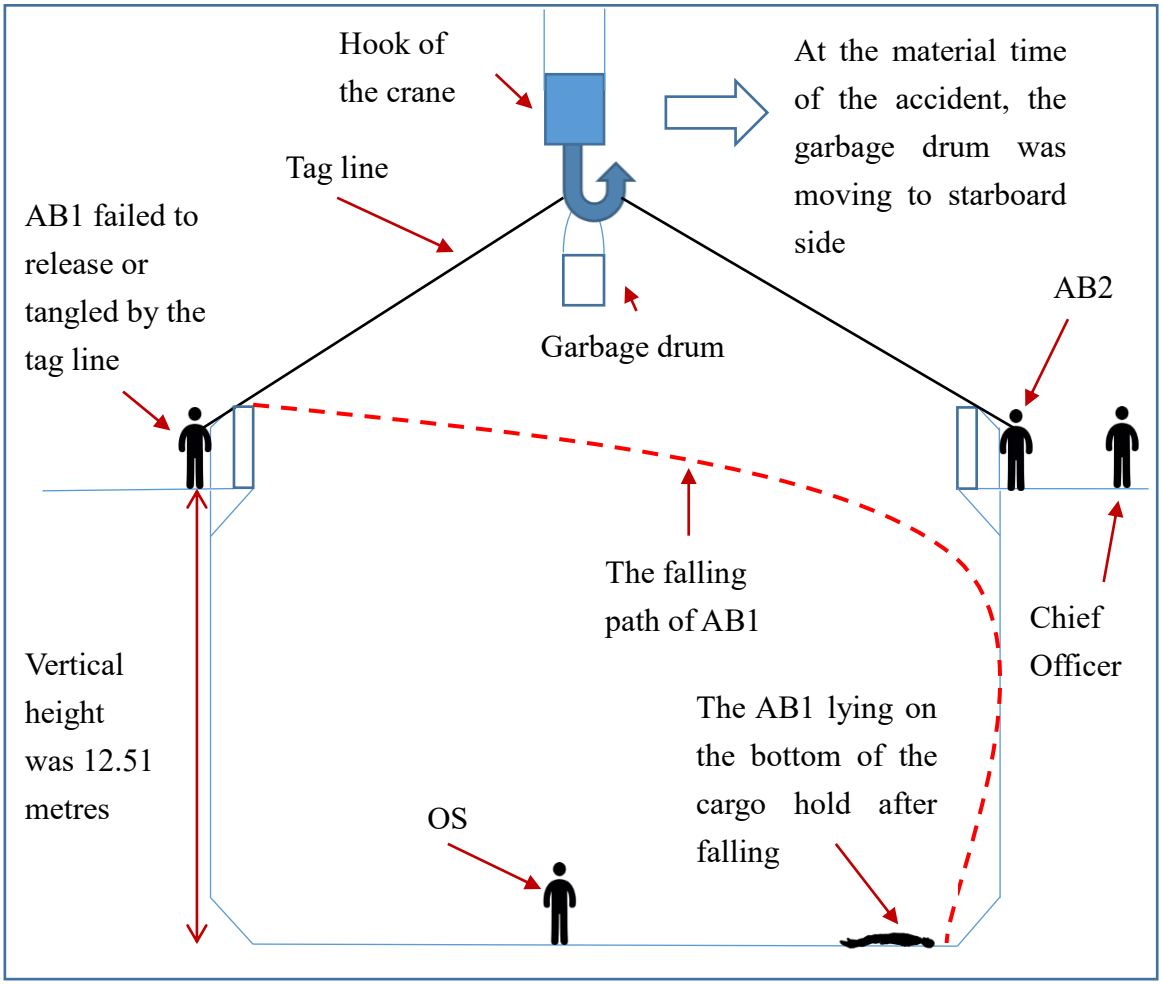


Figure 4 Simulation the falling path of the AB1

***The lifting operation***

4.14 Paragraph 19.9.1 of the Code[1] stated that "*Every lifting operation must be: subject to risk assessment; properly planned; appropriately supervised; and carried out in a safe manner*."

4.15 Although the Chief Officer identified the risk of falling from height and verbally reminded the lifting team members not to climb on cargo hold hatch coamings, there was no evidence to show that he had assessed any other significant hazards and established safety measures including, for example, effective communication to be established among the lifting team members; slow and steady hoisting and slewing motions of the crane to be ensured, etc.

4.16 With the lack of awareness that the height of 1.74 metres cargo hold hatch coamings could block the view of AB1 thus failing to address this safety issue to lifting team members, the Chief Officer did not give instruction to Bosun to operate the crane in a steady slow slewing speed in order to allow AB1 to have the time needed to slacken his tag line or to keep clear of the tag line during the lifting process. Hence, the risk assessment had not been properly done in advance in accordance with paragraph 19.9.1 of the Code.

4.17 It was also noted that there was no official briefing or toolbox meeting amongst the lifting team members to discuss safety issues and to get familiar with the details of the control measures to be followed in order to eliminate or minimize risks before the work. As the competent person in charge, there was no evidence to indicate that the Chief Officer had assigned duties to team members in accordance with each member's limits and capabilities. The lifting operation had not been planned in advance in accordance with paragraph 19.9.1 of the Code.

***Communication and supervision of the lifting team***

4.18 Both AB1 and AB2 were not able to see the motion of garbage drum when controlling their tag lines and that the Chief Officer's view of AB1 was also blocked by the longitudinal hatch coamings. There was no proper communication established amongst lifting team members.

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[1] Section 4 of Cap. 478M "Merchant Shipping (Seafarers) (Code of Safe Working Practices) Regulation" refers.

4.19 The AB1 had no means such as portable radio to communicate or listen the communications between the Chief Officer and Bosun in the lifting operation. Without knowing that the Chief Officer had directly instructed the Bosun through portable radio to slew the crane for transferring the garbage drum to main deck starboard side, AB1 did not expect that his tag line would be subjected to a sudden jerk. Subsequently, AB1 was pulled by the sudden pulling force applied to the tag line leading to the accident. All evidence indicated that effective communication was not established for the lifting operation and supervision of the lifting team was inadequate.

***Training and safety awareness of the lifting team***

4.20 After the accident, AB1's safety helmet was examined and found that it was largely undamaged and the attached chin strap was intact without any sign of tearing apart. It could be deduced that the safety helmet had come off from AB1 during the fall as the chin strap had not been fastened properly. Without helmet protection, AB1 suffered severe head injury.

4.21 Bosun sitting inside the control cabin of the crane had the full view of the cargo hold as well as his teammates' positions including AB1. However, the Bosun only concentrated on the movement of the garbage drum and slewed the crane immediately to the starboard side after receiving instruction from the Chief Officer. As such, the Bosun did not witness the process of how AB1 fell into the cargo hold.

4.22 The accident indicated that the lifting team had inadequate safety awareness and training on the safe operation of the crane with respect to the control of tag lines. Should the Bosun control the slewing speed of the crane carefully in relative to the control of his teammates on the tag lines, the accident could have been avoided.

## 5. Conclusions

5.1 On 16 June 2020, a fatal accident happened on board *the vessel* when she anchored at the outside port limits anchorage of Kwangyang, South Korea. The AB1 on the main deck port side was assigned to handle the tag line secured on the hook of the crane in order to prevent any excessive swaying motion of garbage drum lifting out of the No.2 cargo hold. When the garbage drum was lifted up to about a metre above the cargo hold hatch coaming, Bosun operated the crane to move the garbage drum to starboard side. During the process, the AB1 suddenly shouted and then he was hauled by the tag line flying sideways across the cargo hold from the port side to starboard side and bumped on the starboard side shell web frame of No. 2 cargo hold. Finally, he fell down to the cargo hold bottom. Despite AB1 was evacuated by a rescue helicopter to the shore hospital for emergency medical treatment, he was declared dead before arriving at the hospital.

5.2 The investigation revealed that the main contributory factors causing the accident were as follows :

(a) risk assessment and planning of the lifting operation did not meet the requirements in paragraph 19.9.1 of the Code;

(b) effective communication among the lifting team members was not established;

(c) on-site supervision was inadequate; and

(d) training on lifting operation and safety awareness were inadequate, including the use and control of tag line and the crane safely, and the wearing of safety helmet properly.

## 6. Recommendations

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

(a) conduct lifting operation in accordance with the Code, in particular the risk assessment, planning, communication and supervision; and

(b) establish training plan to enhance personnel safety awareness including wearing safety helmet properly and the familiarization of lifting operation.

6.2 The management company should also conduct internal audit on *the vessel* to ensure that the crew strictly follow safety requirements of lifting operation stated in the Code.

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 the consultation, there was no comment received from the above mentioned parties.