Report of investigation into the fatal accident when working aloft during the cargo hold cleansing on board Hong Kong registered woodchip carrier *"Surabaya Express"* on 16 February 2015

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

16 February 2016

Purpose of investigation

This incident is investigated in accordance with the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (the Casualty Investigation Code) adopted by IMO Resolution MSC.255(84).

The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department, in pursuant to the Merchant Shipping Ordinance Cap. 281, the Merchant Shipping (Safety) Ordinance (Cap. 369), the Shipping and Port Control Ordinance (Cap. 313), or the Merchant Shipping (Local Vessels) Ordinance (Cap. 548), as appropriate, is to determine the circumstances and the causes of the incident with the aim of improving the safety of life at sea and avoiding similar incident in future.

The conclusions drawn in this report aim to identify the different factors contributing to the incident. They 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 The Hong Kong registered woodchip carrier "Surabaya Express" (the *vessel*) was en-route to a loading port in Chile after departure of the discharge port in Korea on 15 February 2015. On the morning of 16 February 2015, when the *vessel* was in the approximate position of 31° 27.1N 128°33.2E, crew members on board started to cleanse the No.1 cargo hold.

1.2 An able-bodied seaman and an ordinary seaman were assigned to cleanse the forward part of the cargo hold on deck. After completion of the cleansing work for this part, the able-bodied seaman entered into the cargo hold by climbing down the vertical steel ladder until he arrived at the first landing platform. At there, he cleansed the top area of the cargo hold, while the ordinary seaman was staying on deck adjacent to the forward access hatch to provide assistance to him if necessary.

1.3 At about 0950 hours, the ordinary seaman went down to the cargo hold. He fell down to the third landing platform of about 7 metres in height when climbing down the vertical ladder of the cargo hold.

1.4 The ordinary seaman sustained serious injury and was rescued to a hospital by a helicopter in Kagoshima, Japan at about 1430 hours on 16 February 2015. He was certified dead later on the same day.

1.5 At the time of the accident, the weather was cloudy with moderate westerly wind of force 4 on the Beaufort scale. The *vessel* was sailing normally without experienced severe rolling and pitching.

1.6 The investigation revealed the main contributory factors to the accident as follows : -

a) cleansing the internal surfaces of the No.1 cargo hold caused the vertical steel ladder wet and slippery;

b) the ordinary seaman underestimated the risk and could not maintain a three-point contact when climbing down from the ladder. It was probably that he lost his balance and fell down due to a slip on the ladder; and

c) the ordinary seaman, who was not an experienced seafarer, was not closely supervised while working on board.

2. Description of the vessel

1.1 Particulars of M.V. “Surabaya Express”

Port of Registry	:	Hong Kong
IMO No.	:	9554731
Official No.	:	HK- 3907
Call Sign	:	VRML4
Classification Society	:	American Bureau of Shipping
Type of Ship	:	Woodchip Carrier
Year of Built	:	2013
Ship Manager	:	Orion Ship Management Pte, Ltd.
Length	:	210.6 metres
Breadth	:	37.0 metres
Depth	:	23.95 metres
Gross Tonnage	:	54,686
Net Tonnage	:	20,576
Dead Weight	:	70,099 tonnes
Engine Power	:	10,470 kW
No. of Crew	:	22

Fig. 1 M.V. " *Surabaya Express*"

3. Sources of evidence

3.1 The master and crew of the *vessel*

3.2 The management company of the *vessel*

4. Outline of events

(All times were local time GMT + 9 unless otherwise stated)

4.1 After discharging cargo of woodchip in Yosu, Korea on 15 February 2015, the Hong Kong registered woodchip carrier "Surabaya Express" (the *vessel*), under ballast condition, sailed to Calbuco, Chile for loading of the same cargo. All cargo holds would be cleansed before arrival.

4.2 A safety meeting was held at about 0810 hours on 16 February 2015 before commencing the cargo hold cleansing work. Crew members were briefed about their duties and the safety issues to be noted. The risks were assessed and the assessment report was approved by the master.

4.3 The work was started at about 0830 hours. The *vessel* was in approximate position of 31° 27.1N and 128° 33.2E, about 60 nautical miles southwest of Kyushu, Japan. A total of six crew members were engaged in the cleansing work. They were the bosun, two able-bodied seamen, two ordinary seamen, and one deck cadet. The bosun and one of the ordinary seamen were responsible to sweep and clean woodchip residues at the bottom of No.1 cargo hold. The other crew members, divided into two teams and each led by one able-bodied seaman, cleansed the hatch cover, hatch coaming and the adjacent deck area with water hoses.

4.4 At about 0850 hours, the chief officer attended the No.1 cargo hold to supervise and monitor the work.

4.5 One of the two teams, which comprised one able-bodied seaman and one ordinary seaman, finished the cleansing on deck in the forward of the No.1 cargo hold. The able-bodied seaman entered into the cargo hold through the forward access hatch and climbed down the vertical steel ladder until he arrived at the first landing platform (Fig. 2). He then started to cleanse the upper part of the cargo hold with a water jet, while his teammate, the ordinary seaman, was staying on deck adjacent to the forward access hatch to provide assistance to the able-bodied seaman when necessary.

4.6 At about 0947 hours the able-bodied seaman completed the cleansing of the upper part of the cargo hold. He subsequently left the cargo hold to the crew accommodation for a break of rest. He told his teammate not to enter into the cargo hold.

4.7 At about 0950 hours, crew members heard a loud screaming. Immediately, they went to the cargo hold and found the ordinary seaman lying on the third landing platform unconsciously and bleeding.

4.8 The chief officer called the watchkeeping officer in the bridge to summon an emergency team for the rescue of the ordinary seaman. At about 1035 hours, the ordinary seaman was lifted up to the main deck. The master reported the vital condition of the ordinary seaman to a shore doctor through radio. First aid treatment was applied to him as per instructions given by the shore doctor. The *vessel* diverted to the nearby port in Kagoshima, Japan. At about 1350 hours, medical personnel arrived on board the *vessel* by helicopter and treated the injured before winching him to the helicopter. The ordinary seaman arrived at a hospital at about 1430 hours and he was declared dead later on the same day.

Fig.2 No.1 Cargo Hold, forward bulkhead

5. Analysis

Manning of the *vessel*

5.1 The *vessel* was manned by a total of 22 mainland Chinese crew members.

5.2 The master had served as a shipmaster for about 2 years. He possessed a Certificate of Competency as master on ships of 3000 GRT or more issued by the People's Republic of China valid until 18 December 2018 and a Class 1 License (Deck Officer) issued by the Hong Kong Marine Department on 18 December 2013. He signed on the *vessel* as a master on 2 January 2015.

5.3 The chief officer had served as a chief officer of ships for more than 2 years. He possessed a Class 2 Certificate of Competency on ships of 3000 GRT or more issued by the People's Republic of China valid until 31 December 2016 and a Class 2 License (Deck Officer) issued by the Hong Kong Marine Department on 11 October 2014. He signed on the *vessel* as a chief officer on 11 February 2015.

5.4 The bosun held a Certificate of Competency at navigation support level issued by the People's Republic of China on 22 April 2013 valid until 31 December 2016. He had about 4 years of seagoing experience. He joined the *vessel* on 2 January 2015 as a bosun and he had had about 8 months working experience as a bosun before the incident happened.

5.5 The deceased ordinary seaman joined the *vessel* on 2 January 2015 as an ordinary seaman. He possessed a Certificate of Proficiency on basic training issued by the People's Republic of China on 13 May 2014. The *vessel* was his first ship and he had only about one month of seagoing experience when the accident happened.

Working hours and Alcohol Abuse

5.6 There was no evidence to show that any crew member, including the deceased ordinary seaman, suffered from fatigue at work.

5.7 There was no indication or evidence of alcohol abuse of the deceased ordinary seaman.

Weather and Sea Condition

5.8 On 16 February 2015, the weather was cloudy with moderate westerly breeze of force 4 on the Beaufort scale. The *vessel* was sailing normally without experienced severe rolling and pitching.

Potential hazards of climbing a vertical ladder on board ship

5.9 Safe working practice is crucial when climbing a vertical ladder on board ship. A seafarer should maintain a three-point contact (i.e. either two hands and one foot or two

feet and one hand) with the ladder at all times during climbing (Fig.3). Breaking of the three-point contact only before landing.

5.10 The ladder should be kept clean and non-slippery as far as possible. Proper non-slippery safety shoes and hand glove should be worn.

Fig.3 Maintain three-point contact to climb a vertical ladder

The probable causes of the accident

5.11 There was no witness to the cause of the accident.

5.12 The vertical ladder got wet and slippery when cleansing work was carried out inside the cargo hold. Although the ordinary seaman had his non-slippery safety shoes on during the cleansing work, it was probably that he lost his balance and fell down due to a slip on the wet and slippery ladder.

5.13 A good seamanship and safe working practice of a seafarer must be acquired over time and under proper training and supervision by experienced officers on board ships. The deceased ordinary seaman had about one month experience working on board ship and that the *vessel* was his first ship. Despite he was a qualified seafarer in possession of the certificate of proficiency on basic training, proficiency in survival craft and rescue boats other than fast rescue boat, advanced fire-fighting, medical first aid, security awareness training and designated security duties, he still needed close supervision by his supervisors (the chief officer and the bosun) while working on deck.

5.14 His intention of entering into the cargo hold was not known despite his teammate, the able-bodied seaman, had told him not to enter into the cargo hold before leaving the work place for taking a rest. And it was unlikely that the ordinary seaman accidentally fell into the cargo hold through the access hatch opening. Based on the available evidence, it was apparent that the ordinary seaman climbed down the wet and slippery vertical ladder alone into the cargo hold with unknown reason. He underestimated the risk of doing so. While he was on his way climbing down the ladder, he could not maintain a three-point contact probably due to a slip and lost his grasp on the vertical ladder. He fell down to the third landing platform of about 7 metres in height.

The autopsy report

5.15 The autopsy report indicated that the death of the ordinary seaman was due to shock and loss of blood resulting of skull and bones fractures. The cause of the death was in consistence with a "falling from height".

6. Conclusion

6.1 The Hong Kong registered woodchip carrier "Surabaya Express" (the *vessel*) was en-route to a loading port in Chile after departure of the discharge port in Korea on 15 February 2015. On the morning of 16 February 2015, when the *vessel* was in the approximate position of 31° 27.1N 128°33.2E, crew members on board started to cleanse the No.1 cargo hold.

6.2 An able-bodied seaman and an ordinary seaman were assigned to cleanse the forward part of the cargo hold on deck. After completion of the cleansing work for this part, the able-bodied seaman entered into the cargo hold by climbing down the vertical steel ladder until he arrived at the first landing platform. At there, he cleansed the top area of the cargo hold, while the ordinary seaman was staying on deck adjacent to the forward access hatch to provide assistance to him if necessary.

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7. Recommendation

7.1 A copy of this report should be sent to the ship management company and the master of the *vessel* advising them the findings of this accident.

7.2 The owner should take appropriate preventive measures to avoid recurrence of similar accident, particularly of the following : -

(a) the safety awareness of crew members on board ship in respect of climbing a vertical ladder at height must be enhanced through on board education and training; and

(b) stipulate clear procedures that the work of inexperienced crew members on board must be closely supervised and should not leave them alone on deck.

7.3 The management company should inform the Marine Accident Investigation Section of the Hong Kong Marine Department of the above corrective actions taken upon completion.

7.4 A Merchant Shipping Information Note (MSIN) should be issued to promulgate the lessons learnt from this accident.

8. Submission

8.1 In the event that the conduct of any person or organization is commented in an accident investigation report, it is the policy of the Hong Kong Marine Department that a copy of the draft report is given to that person or organization so that they have the opportunity to rebut the criticism or offer evidence not previously available to the investigating officer.

8.2 The draft report was sent to Orion Ship Management Pte. Ltd, the manager of the *vessel*, and to the master of the *vessel* through the manager for the comments. They accepted the report without comment.