Report of investigation into fatal accident on board Hong Kong registered ship "*Alpine Mystery*" in Mossel Bay anchorage of South Africa on 30 October 2015.

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

6 April 2017

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 On 30 October 2015, the Hong Kong registered oil/chemical tanker "*Alpine Mystery*" (*the vessel*) anchored at the approximate position 34° 07.36' S, 022° 09.94' E in Mossel Bay of South Africa waiting for berth to discharge cargo. The chief engineer who was 61 years old with an obese body had finished his service on *the vessel* and was waiting for a launch to leave *the vessel* in the morning.

1.2 A pilot ladder was lowered about 7 meters on the port side of *the vessel* for the chief engineer to disembark. The weather was drizzling with moderate breeze.

1.3 A launch arrived at about 0730 hours (UTC+2). At about 0745 hours, the launch was by the ship side at approximately 2 metres ahead of the pilot ladder gradually moving astern to come under the ladder. The chief engineer put on a life vest received from the launch and began to climb down the ladder to board the launch. At about half way down the ladder, he fell into the sea.

1.4 The chief engineer failed to get hold of the lifebuoy thrown from *the vessel* and sank into the sea. About 5 minutes later, the crew of the launch discovered the chief engineer drifting at the stern of *the vessel*. They recovered him on board and sent him to shore for emergency medical treatment. At about 0820 hours, the launch arrived at the shore. Shoreside paramedics applied resuscitation to the chief engineer. At about 0824 hours, the chief engineer was declared dead.

1.5 The investigation had identified the following contributory factors to this accident:

a) a proper risk assessment for the disembarkation arrangement had not been carried out by taking into account the chief engineer's obese body, his health condition (coronary artery disease) and the prevailing weather and sea conditions. If a pilot transfer combination arrangement was provided despite the use of pilot ladder was technically correct in meeting SOLAS requirement, it might have prevented the chief engineer from falling into the sea; and

b) the chief engineer did not wear shipboard inflatable lifejacket or SOLAS lifejacket in accordance with the requirements of the shipboard safety management system. Instead, the chief engineer had wrongly donned a life vest provided by the launch and the life vest was of unknown performance standard. Given the chief engineer was found in an unconscious face down position and drowned, it appeared that the life vest was incapable of turning an unconscious person into upright safe position.

2. Description of the vessel

*Alpine Mystery (*Figure 1)

Particulars

Flag	:	Hong Kong, China
Port of registry	:	Hong Kong
IMO No.	:	9392808
Type	:	Oil/Chemical Tanker
Year built, shipyard	:	18 May 2009, Hyundai Mipo Dockyard Co.,Ltd., Ulsan, South Korea.
Gross tonnage	:	29,266
Net tonnage	:	12,026
Summer deadweight	:	47,128 tonnes
Length overall	:	175.56 metres
Breadth	:	32.2 metres
Engine power, type	:	9,480 kW, Hyundai MAN B&W 6S 50MC-C7 Engine
Classification society	:	Korean Register of Shipping
Registered owner	:	Heroic Perseus Inc.
Management company	:	Executive Ship Management Pte. Ltd.

Figure 1- *the vessel:* M.V. "*Alpine Mystery"*

3. Sources of Evidence

a) The statements of the master, officers and the crew of *the vessel*

b) Information provided by the ship management company of *the vessel*

c) Report from P&I Club of *the vessel*

d) Autopsy report of the deceased

4. Outline of Events

(All times were local time UTC + 2 hours)

4.1 On 30 October 2015, *the vessel* anchored at the approximate position 34°07.36'S, 022°09.94'E in Mossel Bay of South Africa waiting for a berth to discharge cargo. The chief engineer who was 61 years old with an obese body had finished his service on the *vessel* and was waiting for a launch to leave *the vessel*.

4.2 At about 0715 hours, a launch informed *the vessel* by radiotelephone call that she was arriving in 15 minutes.

4.3 The chief officer instructed three able bodied seamen to prepare a pilot ladder and gangway at the lee (port) side of *the vessel* for the chief engineer to board the launch. The weather was drizzling with moderate southeasterly breeze, and the wave height was about 1 meter. The port side pilot ladder was lowered along the ship's side until it was about 2 meters above the water surface.

4.4 At about 0730 hours when the launch arrived, a motorman of *the vessel* lowered the luggage of the chief engineer by a rope to the launch. The crew of the launch then passed a life vest (Figure 5) to *the vessel* for the chief engineer to wear before boarding the launch.

4.5 The able bodied seamen were at the disembarkation position of *the vessel* when the chief engineer put on the life vest and climbed down the pilot ladder. At about 0745 hours when the chief engineer was half way down the ladder to about 5 meters above the water surface, the launch was by the ship side at approximately 2 meters ahead of the pilot ladder gradually moving astern to come under the ladder. When the launch crew asked the chief engineer to climb further down, the chief engineer suddenly lost his grab and fell into the sea.

4.6 The able bodied seamen immediately threw a standby lifebuoy from the disembarkation position to the sea, but the chief engineer failed to get hold of the lifebuoy and sank. He was drifted by the current and, surfaced at about 10 to 15 meters away from the stern of *the vessel* at face-down position despite wearing life vest.

4.7 At about 0750 hours when the crew of the launch noticed the position of the chief engineer, one of the crew jumped into the sea to rescue him while the launch was moving close to him. The chief engineer was recovered on board the launch and the crew applied resuscitation to him. However, the crew found that the chief engineer required emergency

medical treatment and therefore drove the launch to shore while calling also for ambulance assistance to standby at the shore. At about 0820 hours, the launch arrived at the shore. Shoreside paramedics applied resuscitation to the chief engineer. At about 0824 hours, the chief engineer was declared dead.

5. Analysis

Manning of the *vessel* and work experience of concerned crew members

5.1 *The vessel* was manned by 21 Indian crew members.

5.2 The master had served as a shipmaster for about 3 years. He possessed a Certificate of Competency as a master issued by the Government of India valid until 9 February 2016 and a Class 1 Licence (Deck Officer) issued by the Hong Kong Marine Department on 27 February 2014. He signed on *the vessel* as a master about 3 months before the accident.

5.3 The chief officer had served as a chief officer for about 1 year. He possessed a Certificate of Competency as a chief officer issued by the Government of India valid until 31 December 2016 and a Class 2 Licence (Deck Officer) issued by the Hong Kong Marine Department on 29 October 2013. He signed on *the vessel* as a chief officer about 5 months before the accident.

5.4 The chief engineer who was 61 years old had served as a chief engineer for about 7 years. He possessed a Certificate of Competency as a chief engineer issued by the Government of India valid until 1 May 2019 and a Class 1 Licence (Engineer Officer) issued by the Hong Kong Marine Department on 21 July 2014. He signed on *the vessel* as a chief engineer about 5 months before the accident.

5.5 The three able bodied seamen joined *the vessel* for more than 3 months. They had seagoing experience as deck ratings ranging from 3 to 8 years. They were qualified deck ratings with "Certificate of Competency" at navigation support level issued by the Government of India.

Working hours and alcohol or drug abuse

5.6 There was no evidence to show that any crew member involved, including the chief engineer, had suffered from either fatigue at work or alcohol or drug abuse.

Weather and sea conditions

5.7 On the day of the accident, the weather was cloudy with slight drizzle, southeasterly wind of force 4 on the Beaufort scale and moderate sea condition with wave height about 1 metre. The current was strong of about 1.5 knots in the anchorage. Visibility was good at the material time. The pilot ladder was wet due to the drizzling weather and the launch was difficult to hold her position at *the vessel*'s side below the ladder due to strong current. The weather and sea conditions could be encountered anywhere of the world trading ports and therefore not considered as the principal contributory cause to the fall of the chief engineer.

Autopsy report

5.8 The autopsy report concluded that the cause of the death of the chief engineer who had obese nutrition, was consistent with drowning following a possible cardiac event due to coronary artery disease. The autopsy also revealed that the chief engineer had stick-on electrocardiograph discs on his shoulders and below his left nipple.

The pilot ladder

5.9 The pilot ladder (Figure 2) was a wooden ladder made of manila rope and wooden steps. The lowest spreader step was the fifth step from the bottom of the ladder. Then, there was a spreader step at each interval of nine steps to prevent the ladder from twisting and to increase its stability along the ship's side. The construction of the pilot ladder conforms with SOLAS standards.

Figure 2 - The pilot ladder

5.10 In accordance with the International Convention for the Safety of Life at Sea (SOLAS), Chapter V - "Safety of navigation", Regulation 23 - "Pilot transfer arrangements", paragraph 3.3 - "safe and convenient access to and egress from ship," the pilot ladder shall not require a climb of more than 9 meters. Otherwise, it is necessary to use accommodation ladder in conjunction with the pilot ladder as a combination arrangement.

5.11 Since the distance between the disembarkation point on *the vessel*'s main deck and the launch was not more than 9 metres, the shipboard disembarkation arrangement of using pilot ladder solely was technically correct in meeting the SOLAS requirement (Figure 3). If a proper risk assessment had been carried out by taking into account the chief engineer's obese body and his health conditions as well as the prevailing weather and sea conditions, however, special consideration of providing pilot transfer might have prevented the chief engineer from falling into the sea.

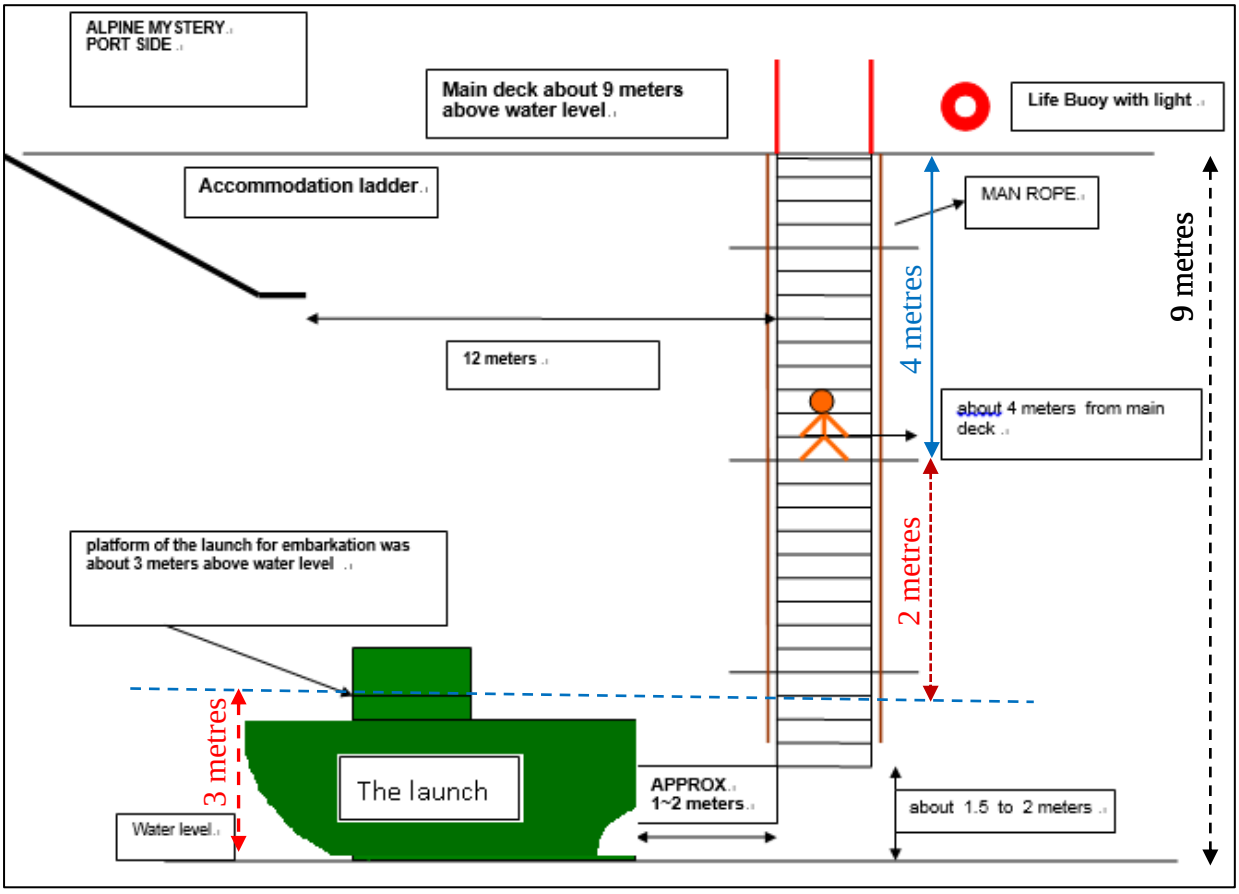

Figure 3 - The pilot ladder arrangement to board the launch.

The life vest

5.12 In accordance with the "Guidelines for personal protection equipment usage" (the Guidelines) of the shipboard safety management system, personnel are required to don "life vest at all times" for embarking and disembarking through gangway and pilot ladder over ship's sea side. As advised also by the company, there was a safety circular issued to reiterate that inflatable lifejackets available on board have to be donned by all persons while embarking/disembarking *the vessel* from the sea-side and when carrying out any over side maintenance work.

5.13 *The vessel* was provided with inflatable lifejackets (Figure 4) which were meant as the "life vest" stated in the Guidelines. These inflatable lifejackets were less bulky and easier to don when compared to the use of conventional inherently buoyant lifejackets. More importantly, these inflatable lifejackets had "EC[1] type - examination certificate" , and were tested to:

a) meet the basic health and safety requirements of Council Directive 89/686/EEC; and
b) comply with the relevant requirements of the technical specification of EN ISO 12402-3:2006+A1:2010 for lifejackets of performance level 150.

Figure 4 - *the vessel*'s inflatable lifejacket

As such, these shipboard inflatable lifejackets are capable of providing sufficient buoyancy

[1] European Commission

to a wearer with foul weather clothing and will turn an unconscious person into a safe position with his mouth and nose clear of water surface. However, the chief engineer did not use the shipboard inflatable lifejacket for his disembarkation.

5.14 In fact, the *vessel* was also provided with SOLAS lifejackets for each person on board. In general, SOLAS lifejackets are designed to provide a high performance device for offshore and severe conditions, when maximum protection is required. The chief engineer could also don a SOLAS lifejacket for his disembarkation.

5.15 Instead of donning a shipboard inflatable or SOLAS lifejacket of certified performance standard, the chief engineer chose to wear a life vest of unknown performance standard provided by the launch (Figure 5). Given the chief engineer was in an unconscious face down position when found and drowned, it appeared that the said life vest was not the one that could turn an unconscious person into an upright safe position.

Figure 5 - The life vest used by the chief engineer

5.16 It is considered that the provision of pilot transfer combination arrangement might have prevented the chief engineer from falling into the sea. Even if the chief engineer fell into sea unconscious, he might have been saved from drowning if wearing a shipboard inflatable lifejacket or a SOLAS lifejacket in accordance with the requirements of safety management system.

6. Conclusions

6.1 On 30 October 2015, *the vessel* anchored at the approximate position 34°07.36'S, 022°09.94'E in Mossel Bay of South Africa waiting for berth to discharge cargo. The chief engineer had finished his service on the *vessel* and left the *vessel* at about 0745 hours to board a launch through a pilot ladder. The chief engineer wore a life vest, of unknown performance standard, provided by the launch. At about half way down the pilot ladder, the chief engineer fell into the sea and was found 5 minutes later drowned in an unconscious face down position.

6.2 The investigation had identified the following contributory factors to this accident :

a) a proper risk assessment for the disembarkation arrangement had not been carried out by taking into account the chief engineer's obese body, his health condition (coronary artery disease) and the prevailing weather and sea conditions. If a pilot transfer combination arrangement was provided despite the use of pilot ladder was technically correct in meeting SOLAS requirement, it might have prevented the chief engineer from falling into the sea; and

b) the chief engineer did not wear shipboard inflatable lifejacket or SOLAS lifejacket in accordance with the requirements of the shipboard safety management system. Instead, the chief engineer had wrongly donned a life vest provided by the launch and the life vest was of unknown performance standard. Given the chief engineer was found in an unconscious face down position and drowned, it appeared that the life vest was incapable of turning an unconscious person into upright safe position.

7. Recommendations

7.1 The management company of *the vessel* should issue safety instructions to vessels under its management, requesting all crew to follow the procedures of safety management system strictly, i.e. wearing certified inflatable lifejacket or SOLAS lifejacket for disembarkation and embarkation through gangway and pilot ladder on seaside of the ship.

7.2 The management company of *the vessel* should review the relevant risk assessment requirements in the safety management system. For embarkation or disembarkation, proper risk assessment should be carried out by taking into account the prevailing weather and sea conditions as well as personnel's body and health condition, so as to determine the most appropriate arrangement (such as the use of pilot transfer combination arrangement).

7.3 A Hong Kong Merchant Shipping Information Note is to be issued to promulgate the lessons learnt from the accident, particularly that appropriate arrangement should be made to ensure safe transferring of personnel between ship and launch, and that any lifejacket donned by a wearer should be of the one that can turn an unconscious person into upright safe position.

8. Submissions

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 Marine Department to send a copy of the draft report, either in part or in its entirety, to that person or organization for comments.

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

a) the ship management company and master of *the vessel*; and

b) the Ship Safety Branch of the Marine Department.

8.3 During the consultation period, comments from the management company of *the vessel* were received and had been properly considered and the report has been amended accordingly.