



Report of Investigation
into the fatal accident of
a lighterman on board
local dumb steel lighter “*Pak Lee*”
at Stonecutters Island
Public Cargo Working Area
on 13 January 2009



Purpose of Investigation

This incident is investigated, and published in accordance with the IMO Code for the Investigation of Marine Casualties and Incidents promulgated under IMO Assembly Resolution A.849(20). 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 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.

Table of Contents

Page

1	Summary	1
2	Description of the Vessel	2
3	Sources of Evidence	3
4	Outline of Events	4
5	Analysis of Evidence	7
6	Conclusions	13
7	Recommendations	14
8	Submission	15

1. Summary

- 1.1 An industrial accident happened on board the local licensed dumb steel lighter “*Pak Lee*” at Stonecutters Island Public Cargo Working Area on 13 January 2009. When the derrick crane on the lighter was lifting and transferring laden containers from shore to a river-trade cargo vessel, a lighterman onboard the lighter was found lying at the bottom of the cargo hold. The lighterman was suspected to have fallen down from the second level of the “A”- mast to the bottom of the empty cargo hold of the lighter and sustained fatal injuries.
- 1.2 The investigation revealed that the accident was probably caused by the removal of the fencing provided at the open edge on the second level of the “A”- mast.
- 1.3 The slippery footwear of the deceased, poor housekeeping, the swaying of the lighter due to the wave motions and the movement of derrick boom are also considered as contributory factors to the accident.

2. Description of the Vessel

2.1 Particulars of “*Pak Lee*”

Certificate of Ownership No.:	B21662V
Certificate Issuing Authority :	Hong Kong Marine Department
Type of Vessel :	Class II, Dumb Steel Lighter, Cat.B
Year of Built :	1994
Built At :	Huanghai Shipyard, Shandong, China
Owner :	Pak Lee Shipping Transportation Limited
Length :	44.52 metres
Breadth :	19.19 metres
Depth:	4.88 metres
Gross Tonnage:	1,879.79
Net Tonnage:	1,315.85
Engine Power:	N.A.



Fig. 1: Dumb Steel Lighter “*Pak Lee*”

2.2 “*Pak Lee*” (the “*DSL*”) (see Fig.1), is a locally licensed dumb steel lighter. The *DSL* is fitted with a derrick crane with safe working load ranging from 10 to 60 tons to facilitate cargo handling operations. The derrick crane is rigged to the “*A*”-mast located at the forward of the *DSL*.

3. Sources of Evidence

- The person in charge and the lighterman of the *DSL*
- Drawings and plans of the *DSL*
- Weather report from the Hong Kong Observatory
- Autopsy report of the deceased

4. Outline of Events

- 4.1 On the evening of 13 January 2009, the *DSL* was towed by a tugboat from Yau Ma Tei Typhoon Shelter to Stonecutters Island and at about 2000, she was berthed at the Stonecutters Island Public Cargo Working Area.
- 4.2 After that, a Chinese-registered river-trade cargo vessel was moored to the starboard side of the *DSL*. Containers were loaded to the cargo vessel from shore by using the derrick crane of the *DSL* (see Fig.2).

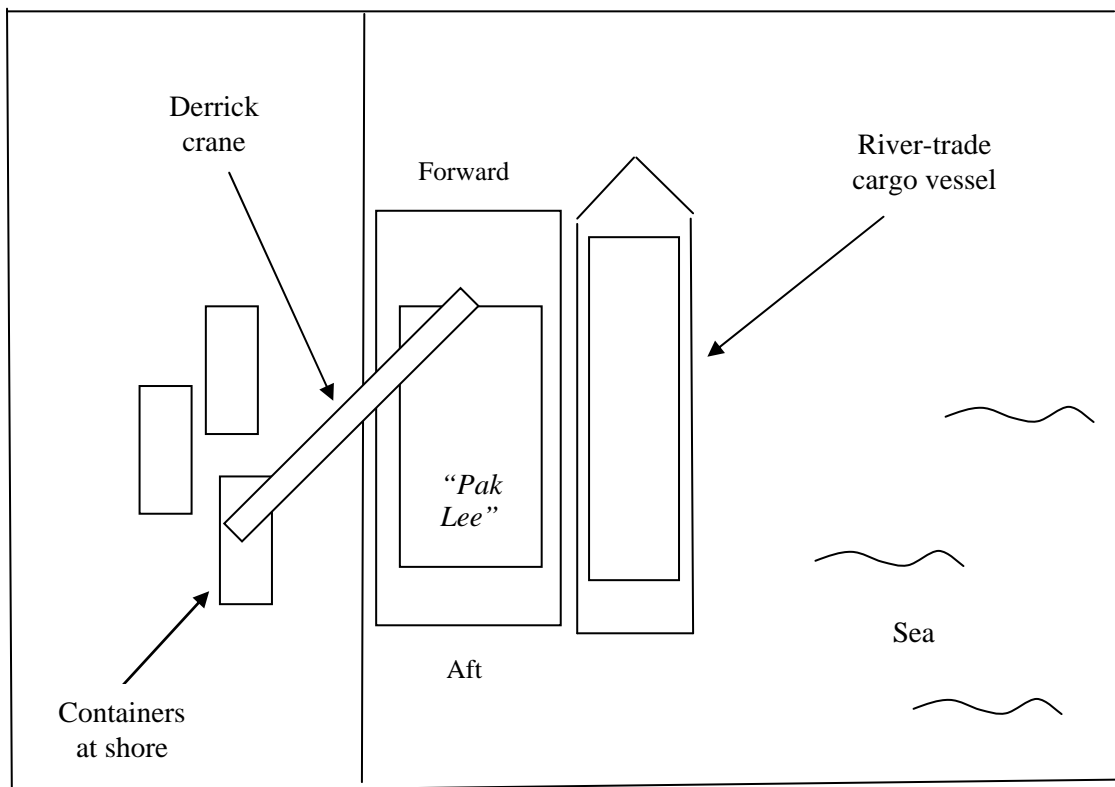


Fig. 2: "Pak Lee" at berth

- 4.3 There were three crewmembers working on board the *DSL*. One of them was the person in charge (PIC) who was also the crane operator and operating the derrick crane in the control station on the 5th level of the "A"-mast. The other two were the Lighterman A and Lighterman B who were making splices to wire ropes on the main deck at the forward of the *DSL* (see Fig.3).
- 4.4 At about 2110, while a 40-foot laden container was transferred from the shore across the cargo hold of the *DSL*, the PIC heard a pounding noise from the cargo hold of the *DSL*. He saw Lighterman A lying on the tank top of the empty cargo hold (see Fig. 4).

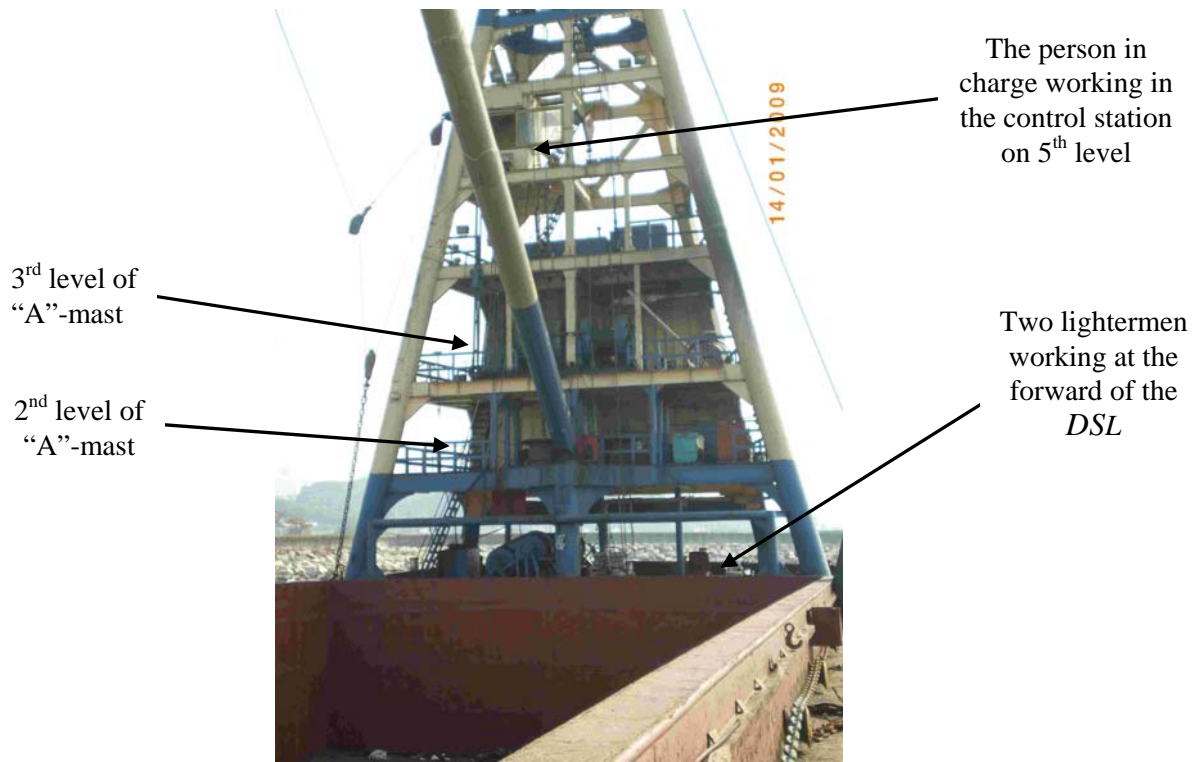


Fig. 3: Crewmembers working on board “Pak Lee”

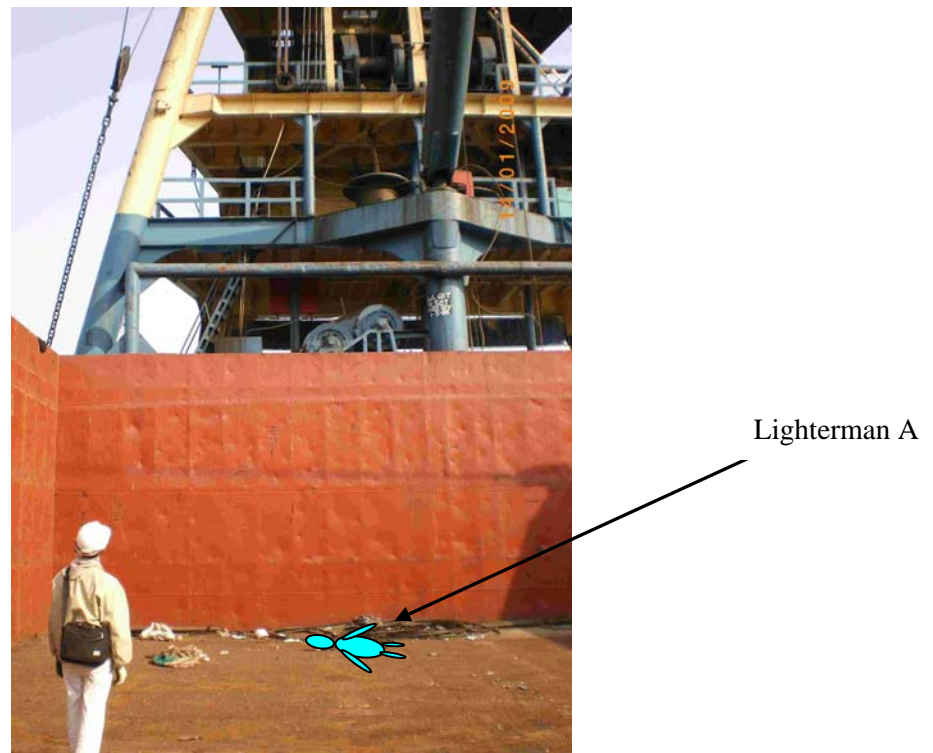


Fig. 4: Lighterman A lying on the cargo hold of “Pak Lee”

- 4.5 The PIC immediately used a loudhailer to tell Lighterman B to go down to the cargo hold to check for Lighterman A. He also used the loudhailer to request staff at the shore to inform the Police.
- 4.6 Lighterman A was sent to the hospital by an ambulance and he was certified dead later in the hospital.

5. Analysis of Evidence

Working experience & training

- 5.1 The PIC had more than 30 years working experience on dumb steel lighters. He was also the crane operator of the *DSL*. He had completed the basic safety training of shipboard cargo handling and the crane operator safety training as required by Merchant Shipping (Local Vessels) (Works) Regulation. His certificates of training were valid. Therefore, the PIC was certificated and competent to operate the derrick crane of the *DSL*.
- 5.2 Lighterman A, the deceased, had several years working experience in container handling on dumb steel lighters. He had worked on the *DSL* for about 6 months. His certificate of training for shipboard cargo handling basic safety training as required by Merchant Shipping (Local Vessels) (Works) Regulation was valid until 20 October 2009, that was still valid on the date of the accident. However, it was confirmed by the issuing training institute that Lighterman A's certificate belonged to another person. It is apparent that Lighterman A's certificate was a fake one. His previous certificate of training for shipboard cargo handling basic safety training, which was confirmed by the issuing training institute to be a real one, expired five years ago. The Merchant Shipping (Local Vessels) (Works) Regulation requires all relevant persons engaged in shipboard cargo handling to receive mandatory basic safety training in shipboard cargo handling. The validity of the certificate is three years and the holder of the certificate is required to attend a refreshment course for renewal of the certificate. The deceased should have attended a refreshment course to obtain a valid certificate when his original certificate of basic training expired.
- 5.3 Lighterman B had about 10 years working experience in container cargo handling on dumb steel lighters. He had completed the basic safety training of shipboard cargo handling and the works supervisor safety training as required by Merchant Shipping (Local Vessels) (Works) Regulation. The certificates of training were valid. Therefore he was certificated and competent to assist the PIC in container handling work onboard the *DSL*.

Working hours

- 5.4 The deceased started work at about 0900 on the day of accident. He had earlier assisted in the repair work of the diesel generator installed on the 3rd level of the "A"-mast. He had taken some rests in the twelve-hour work before the accident. There was no evidence to show that he had suffered from fatigue at work.

The environment

- 5.5 At the time of the accident there was gentle breeze, hence large wavelets might have been formed at the sea. The *DSL* at light ship conditions could be swaying due to the actions of the waves.

The workplace

- 5.6 Prior to the accident, the PIC was operating the derrick crane in the control station on the 5th level of the “A”-mast. The deceased and Lighterman B were making splices to wire ropes on the main deck at the forward of the *DSL* (i.e., on the 1st level of the “A”-mast, see Fig.5). As the three of them worked separately, neither the PIC nor Lighterman B knew where the deceased was and what he was doing. Also, neither the crewmembers onboard the Chinese-registered cargo vessel nor the staff working ashore saw the deceased at the time of the accident.



Fig. 5: Location of the deceased working on board “*Pak Lee*” before the accident

- 5.7 The height of the hatch coaming for the cargo hold of the *DSL* was about 1 metre (see Fig. 6 and Fig. 7).
- 5.8 On the 2nd level of the “A”-mast, there was an opening facing the cargo hold (see Fig. 8). The height from the tank top of the cargo hold to the 2nd level was about 7 metres. There was a reel of new wire ropes placed close to that opening. Two steel chains were provided as guard to the opening. However, the chains were unlashed at the time of the

accident.

5.9 At similar locations on other levels of the “A”-mast, the openings were either blocked by machinery or fenced (see Fig. 9).



Fig. 6: Main deck at the starboard forward part of “Pak Lee”



Fig. 7: Main deck at the port forward part of “Pak Lee”

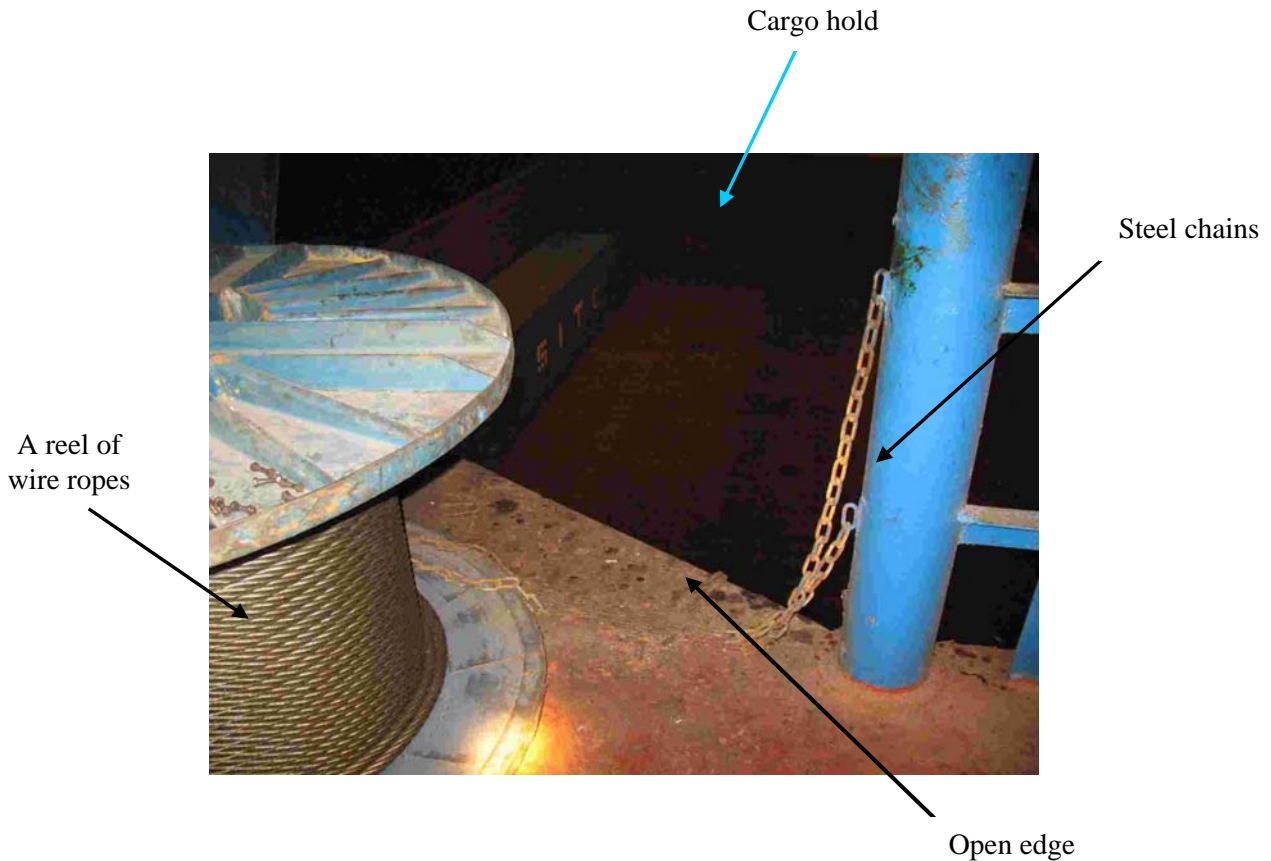


Fig. 8: Open edge on the 2nd level of the “A”-mast on “Pak Lee”

Falling at height

- 5.10 The deceased was found lying inside the cargo hold right under the unfenced opening on the 2nd level of the “A”-mast (see Fig.9). Similar locations on other levels were either fenced or obstructed by machinery. Therefore it could be deduced that the deceased fell from the 2nd level.
- 5.11 The deceased was wearing a pair of sport shoes at work. Oil stains were found on the soles. Oil stains were also found on the floors of the 2nd level to the 5th level of the “A”-mast.
- 5.12 The *DSL* might have swayed under the effect of movements of the heavy derrick boom with the lifted container, together with the waves effect at sea.
- 5.13 It is probable that at the time of accident, the deceased went to the 2nd level of the “A”-mast to get new wire ropes for making splices. The *DSL* was swaying due to the action of waves and movements of the derrick boom with the lifted container, he slipped and lost his balance and fell down into the cargo hold.

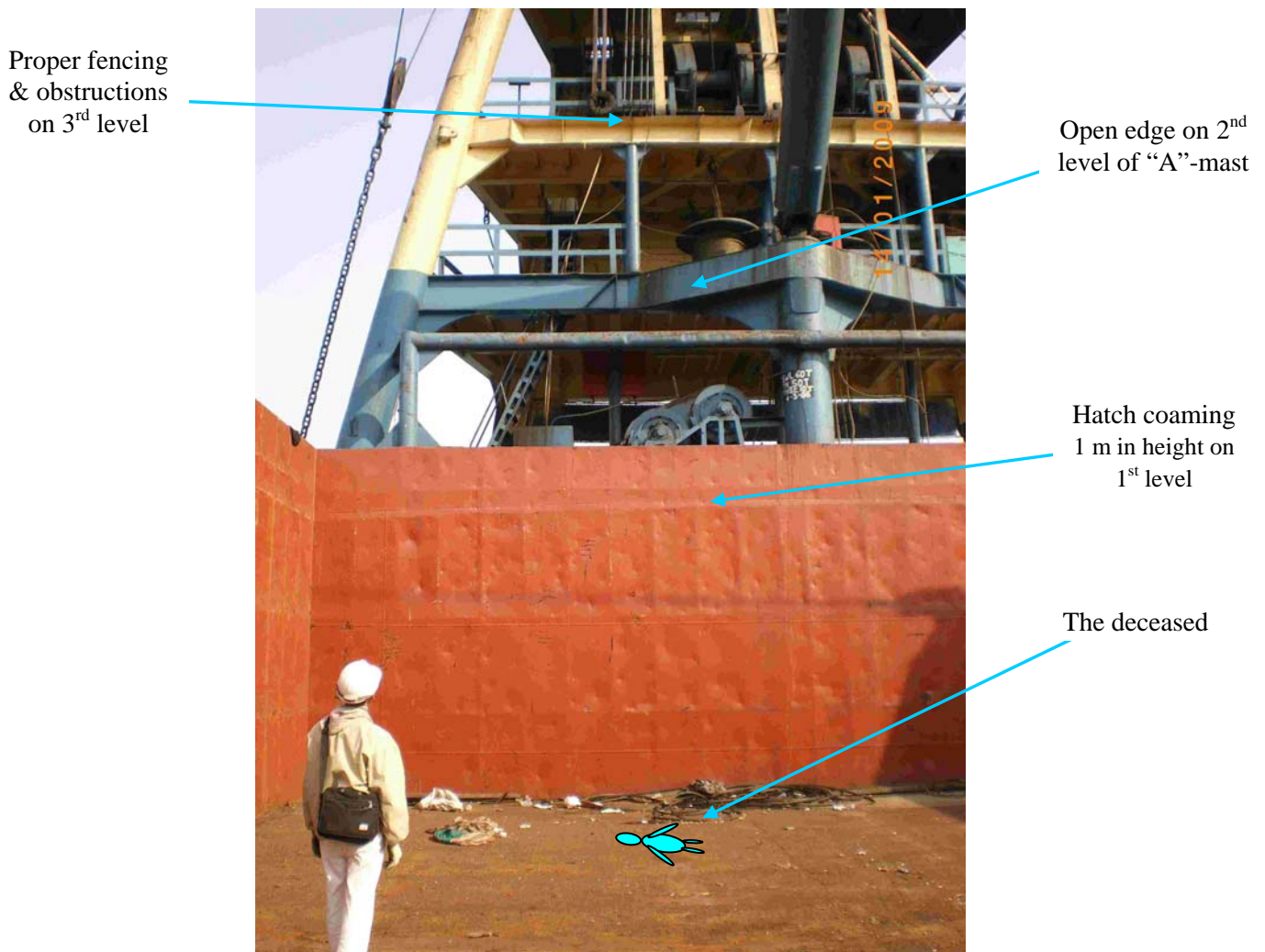


Fig. 9: Probable falling path of the deceased on “*Pak Lee*”

Autopsy report

5.14 The autopsy report of the deceased provided by the Department of Health indicated that the cause of death was multiple injuries which were consistent with having been produced by falling from height.

Safe working practices

5.15 The Code of Practice on Using Protective Clothing and Equipment for Works on Local Vessels issued by Hong Kong Marine Department in January 2007 recommends that suitable safety footwear such as slip resistant safety shoes should be worn while at work.

5.16 Good housekeeping is essential to ensure safe working environment onboard vessels. Oil stains on floors should be cleaned up as soon as practicable.

- 5.17 Section 5 of the Merchant Shipping (Local Vessels) (Works) Regulation stipulates that all breaks, dangerous corners and other dangerous parts of a workplace shall, in so far as reasonably practicable having regard to the works concerned, be securely fenced, and the fence shall be maintained in good condition ready for use.
- 5.18 Section 65 of the Merchant Shipping (Local Vessels) (Works) Regulation prohibits any person to remove or interfere any fencing unless in the case of necessity or with reasonable excuse.
- 5.19 The open edge on the 2nd level of the “A”-mast should be securely fenced and the fence should be maintained in good condition. The steel chains provided to fence the open edge should not be unlashed without valid reason.
- 5.20 The deceased’s certificate of training for shipboard cargo handling basic safety training expired five years ago (refer paragraph 5.2). The certificate of training he held at the time of the accident was a fake. As such he had committed an offence of using false document and at the same time jeopardized his life by not taking a refreshment course to upkeep his safety knowledge and awareness while working onboard.

6. Conclusions

- 6.1 On 13 January 2009, a fatal industrial accident happened on board the locally licensed dumb steel lighter “*Pak Lee*” at the Stonecutters Island Public Cargo Working Area. When the derrick crane on the lighter was transferring laden containers from the shore to a Chinese registered river-trade cargo vessel, a lighterman was suspected to have fallen down from the second level of the “A”-mast to the bottom of the cargo hold of the lighter and sustained fatal injury.
- 6.2 The investigation revealed that the accident was probably caused by the unlashng of chains provided at the open edge on the second level of the “A”-mast.
- 6.3 The other safety factors contributing to the accident were:
- improper footwear was worn by the deceased while working onboard the lighter;
 - slippery floor on the 2nd to 5th levels of the “A” –mast due to oil stains; and
 - swaying of the lighter due to the cargo operation and the wave motions.

7. Recommendations

7.1 A copy of this report should be sent to the owner and the person in charge of the *DSL* advising them the findings of the accident. The owner and the person in charge of the *DSL* are required to:

- ensure their crewmembers use proper working gears; and
- maintain a safe shipboard working environment.

7.2 A Marine Department Notice 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 Marine Department to send a copy of the draft report to that person or organization for their comments.
- 8.2 The draft report was sent to the Owners and the person in charge of the *DSL* for comments.
- 8.3 A submission was received from the Owners of the Vessel. The Owners pointed out that they had checked that the Lighterman A's certificate of training for shipboard cargo handling basic safety training was valid before the employment. Marine Department had also checked with the certificate issuing training institute and was confirmed that the certificate held by Lighterman A' was fake.
- 8.4 Amendments to the investigation report have been made as appropriate.