Report of Investigation into the Collision between wooden workboat “Ng Mui” and dumb steel lighter “Hoi Lung No.88” under towing by tugboat “Sun Lee 1” inside the New Yau Ma Tei Typhoon Shelter on 9 March 2011

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

Completed on 21 June 2012
Purpose of Investigation

This incident is investigated, and published in accordance with the IMO Resolution MSC 255(84), the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code) adopted on 16 May 2008.

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.
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1 Summary

1.1 At about 2145 on 9 March 2011, the local licensed dumb steel lighter *Hoi Lung No.88* which was under tow by the local licensed tugboat *Sun Lee 1*, collided with the local licensed wooden workboat *Ng Mui* within the New Yau Ma Tei typhoon shelter in approximate position 22° 18.89’N 114° 09.33’E. The weather condition was fine with a good visibility and the sea condition was calm. After the collision, *Hoi Lung No.88* sustained some scratches on her starboard bow while *Ng Mui* developed a heavy starboard list and sank shortly. The female coxswain of *Ng Mui* was rescued by the divers from Fire Services Department from inside the sunken workboat. She was sent to the Hospital and certified dead later.

1.2 The investigation has established that the main causes of the accident were:

- Improper navigation lights exhibited by *Sun Lee 1*;
- Deck lights and cargo floodlights were displayed by *Hoi Lung 88* during towing, the exhibitions of navigation lights were therefore impaired; and
- The failure of the coxswain of *Sun Lee 1* to observe Rule 5 of COLREGS by not maintaining a proper lookout.
2. Description of the vessels

2.1 Particulars of the Dumb Steel Lighter (DSL) (Fig.1)

Name of Vessel:  *Hoi Lung No.88*
License No: B21697Y
Trade of Vessel:  River Trade Limits and within Hong Kong waters
Ship Type:  Class II, Dumb Lighter, Category-B
Gross Tonnage:  476.6
Net Tonnage:  333.62
Total number of person permitted to carry:  15
Length (LOA):  30.48 metres
Breadth:  11.58 metres
Year of Built:  1977
Hull Material:  Steel
Registered Owner:  Lam Wai Hung
Ship manager /Operator:  N.A

2.2 Particulars of the Tugboat (Fig.1)

Name of Vessel:  *Sun Lee 1*
License No:  B2274
Trade of Vessel:  River Trade Limits and within Hong Kong waters
Ship Type:  Class II Tug
Hull:  Steel
Gross Tonnage:  99.62
Net Tonnage:  45.54
Length (LOA):  22.52 metres
Breadth:  6.01 metres
Total Number of Person permitted to carry:  6
Main Engine:  Caterpillar (Diesel)
Engine Power:  375.24 kW
Year of Built:  1992
Registered Owner:  Cheung Siu On
Fig. 1- *Sun Lee 1* and *Hoi Lung No.88* moored alongside each other inside the typhoon shelter.
2.3 Particulars of the workboat (Fig. 2)

Name of Vessel:  
License No:  
Ship Type:  
Trade of Vessel:  
Total No. of person permitted to carry:  
Hull Material:  
Gross Tonnage:  
Net Tonnage:  
Length (LOA):  
Breadth:  
Main Engine:  
Engine Power:  
Year of Built:  
Registered Owner:  

Ng Mui  
BM40403Y  
Class II Workboat  
within Specified Sheltered waters of Hong Kong  
8  
Wood  
9.59  
6.72  
7.55 metres  
3.6 metres  
Gardner (Diesel) / inboard  
35.8 kW  
1988  
Ng Mui

Fig. 2 – The wooden workboat Ng Mui after being salvaged from the water
3. **Sources of Evidence**

3.1 Crew onboard *Hoi Lung No.88*;

3.2 The coxswain and engine operator onboard *Sun Lee I*;

3.3 Next of kin of the coxswain of workboat BM40403Y (*Ng Mui*);

3.4 An engine operator of a fishing vessel and a coxswain of a local vessel who had communicated with the deceased coxswain of *Ng Mui* prior to the accident;

3.5 A resident of a nearby housing estate who witnessed the accident;

3.6 Hong Kong Observatory; and

3.7 Government Laboratory Report.
4. **Outline of Events**

Times are in Local Time (UTC+0800)

4.1 **Accounts of the tugboat and the dumb steel lighter**

.1 At about 2030 on 9 March 2011, while the tugboat *Sun Lee 1* was inside the New Yau Ma Tei Typhoon Shelter waiting for company instructions, the coxswain maneuvered *Sun Lee 1* to a nearby landing step inside the typhoon shelter to pick up his relieving coxswain. After the relieving coxswain was on board the vessel and the off-duty coxswain went ashore, *Sun Lee 1* was moored in the vicinity of north entrance inside the typhoon shelter.

.2 At about 2120 the coxswain received instruction from the company to tow the dumb steel lighter *Hoi Lung No.88* moored at the north-eastern area inside the typhoon shelter to Tsing Yi Island.

.3 At about 2130, *Sun Lee 1* started to tow *Hoi Lung No.88* after towline was connected. The tug-and-tow headed in a westerly direction towards the north entrance of the typhoon shelter.

.4 At about 2145, a big bang was heard by the crew staying inside the crew accommodation on board *Hoi Lung No.88*. They went to the starboard bow and saw a wooden workboat sinking. At the same time, the engine operator of *Sun Lee 1* also saw the workboat from the engine room door. He reported to the coxswain and requested to stop the vessel and disconnect the towline. The crew of *Hoi Lung No.88* also reported to the coxswain of the incident using a loudhailer. The tugboat was stopped and the towline was disconnected. *Hoi Lung No.88* dropped anchor at the scene and *Sun Lee 1* moored alongside the starboard side of *Hoi Lung No.88*.

.5 No crew on the workboat was seen by the crew of *Hoi Lung No.88* and *Sun Lee 1*.

4.2 **Accounts related to the workboat**

.1 At about 2127, the engine operator of a fishing vessel moored in the middle part of the central passage inside the typhoon shelter called the workboat *Ng Mui* by mobile phone to send him ashore at the west landing step on the north waterfront of the typhoon shelter off housing estate the One Silver Sea.

.2 At about 2130, a coxswain of a local vessel moored near to the south entrance inside the typhoon shelter also called the workboat to take him ashore at the landing step close to the Western Harbour Crossing Tunnel. But, he was told
by the coxswain of the workboat that she was proceeding to the landing step off
the One Silver Sea and would come back to pick him up afterwards.

.3 At about 2140, the engine operator disembarked from the workboat. At
about 2145 he heard a loud noise at a distance from the typhoon shelter. As it
was dark at night and the vessels were far away from him, he only saw a barge
with lights at position near to the north entrance of the typhoon shelter, and was
oblivious to the accident.

.4 At about 2145, the coxswain of the local vessel who was waiting for the
workboat to send him ashore could not contact the workboat anymore.

.5 At about 2334, the unconscious female coxswain of the sunken workboat
was rescued by divers from the Fire Services Department. She was sent to the
hospital and was certified dead later.

4.3 Account of the others

.1 At about 2140, a resident living in the housing estate the One Silver Sea,
whose apartment is at a upper floor (about 150 m above ground) facing the
typhoon shelter, saw from his apartment two vessels with lights approaching each
other at close distance near the north entrance of the typhoon shelter. After
about 1 to 2 seconds, the vessels collided with each other. He went out to the
balcony of his apartment and saw a wooden boat listed to one side (i.e. starboard
side) and capsized. At 2151, he reported the accident to the Police. He did not
hear any sound signals from the vessels and the banging noise upon ship collision,
as he was inside the apartment with windows closed. About one to two minutes
after the accident, he saw crewmembers of Hoi Lung No.88 went on deck and
used loudhailer asking the tugboat to stop. About 10 minutes later, he saw
launches with red flashing lights arrived at the scene and followed by police
speedboat shortly afterwards.

.2 At about 2200, the Vessel Traffic Centre (VTC) of Marine Department
received information from the Police about the collision accident in the New Yau
Ma Tei typhoon shelter. At about 2218, Marine Department launches arrived at
the scene.

.3 At about 0045 on 10 March 2011, a wreck marking buoy was laid in the
approximate position 22° 18.89’N 114° 09.33’E near to the north entrance
inside the typhoon shelter.

.4 At about 1606 on 10 March 2011, the sunken workboat was lifted up from
the water and placed on a pontoon barge.
5. Analysis

5.1 Collection of evidence

.1 All the three vessels involved in the accident did not equip with devices for recording ship’s movement information. The VTC radars have shaded the area inside the New Yau Ma Tei typhoon shelter and no recording of vessels’ tracks is available.

.2 The crew of Sun Lee 1 and Hoi Lung No.88 were not aware of the existence of workboat until collision happened. The two people who provided information about their communications with the coxswain of the workboat prior to the accident did not witness the accident. A resident living in a nearby high-rise housing estate the One Silver Sea witnessed the accident and provided some information on the events (paragraph 4.3.1).

.3 The workboat was salvaged on the following day after the accident and was placed on the pontoon barge for inspection.

.4 A report was compiled by the Hong Kong Government Laboratory for the debris sample collected from Hoi Lung No.88 and Wooden Workboat.

5.2 Inspections of the vessels

.1 Sun Lee 1 and Hoi Lung No.88 were moored alongside each other inside the typhoon shelter after the accident. External inspection of the vessels afloat was carried out on 10 March 2011. Ng Mui was placed on a pontoon barge for inspection on 10 March 2011.

![Section of the gunwale damaged (App.Length 80 Cm x breath 25Cm)](image)

Fig. 3 – A section of the gunwale of the workboat “Ng Mui” was damaged
The workboat “Ng Mui”

.2 The port side gunwale of the workboat just in front of aft deckhouse was crushed by hard object leaving a section of gunwale about 80 cm long damaged (Fig. 3). It is evident that the workboat was hardly hit at this position. The top edge of the damaged gunwale section was about 72 to 98 cm from sea level.

.3 The canvas awning collapsed (Fig. 2). It is believed that, comparing with other workboats of similar designs and arrangements, the awning on board Ng Mui had been erected in front of the aft deckhouse for providing extra shading area (Fig. 4). The awning covered the whole breadth of the vessel and extended about 1.5 m to 2.0 m forward of the aft deckhouse. The awning was not a rigid structure and liable to damage during sinking and/or salvaging of the vessel.
4 Of the control stand inside the aft deckhouse, the engine gearbox control lever was placed in astern position while engine throttle lever was in the idling position (Fig. 5). The rudder blade was put in the hard starboard position (Fig. 6). It could be deduced into two possible movements: one could be the coxswain put the rudder to starboard in order to pass the stern of Sun Lee 1 at crossing; the other could be the coxswain put the rudder to starboard and reverse the engine in order to avoid collision with Hoi Lung No.88 before or when the mast of the vessel had touched the towing line at the stern of Sun Lee 1.
Fig. 7 - The new chafe mark on the vertical bar of the cross-shaped wooden mast of the workboat formed after contact with the topline

A cross-shaped wooden mast was fitted on top of the aft deckhouse for mounting of masthead light. The vertical bar of the cross was chafed on its forward face. The surface on the port horizontal bar of the cross was also damaged (Fig. 7). The distance from sea water level to the horizontal bar of the cross was approximately 3.0 m. The chafe mark on the vertical bar of the cross was started at about 30 cm below the horizontal bar.
The masthead light fitted at the top of the mast was suspected to have been pulled off completely from its mounting by the towing line (Fig.8). As evidence showed that the body of the masthead light was intact without physical damage.

Fig. 9 - The new scratch marks appeared on starboard bow of DSL Hoi Lung No.88 and the hull plate set-in slightly
The dumb steel lighter *Hoi Lung No.88*

.7 New scratch marks were found on *Hoi Lung No.88*’s side and bow plates over the starboard side forward. The hull plates set-in slightly with scratch at position about 0.5 m to 1 m above the water level. (Fig.9)

.8 The Government Laboratory had collected debris samples from *Hoi Lung No.88* and the workboat after the accident. The Laboratory report indicated the wood source in the sample from *Hoi Lung No.88* was the same as the one from the workboat.

The tugboat *Sun Lee 1*

.9 There was no evidence to show that *Sun Lee 1* was in contact with the workboat.

**5.3 Evidence of collision**

.1 The workboat sank inside the typhoon shelter at position approximately 150 m east of the red light Beacon at the north entrance of the typhoon shelter. A wreck marking buoy was subsequently laid in approximate position 22° 18.89’N 114° 09.33’E.

.2 The two crewmembers of *Hoi Lung No.88* heard a loud banging noise and later they found the workboat capsized. The new scratch marks appeared on starboard bow of *Hoi Lung No.88* and the slightly indented hull plates at position about 0.5 to 1 m above the water level indicated that *Hoi Lung No.88* was in collision with the workboat *Ng Mui* at that position.

.3 A resident of a nearby housing estate saw two vessels with lights collided inside the typhoon shelter, and reported the accident to the Police.

.4 The laboratory report prepared by the Government Chemist indicates that the samples of wood debris taken from the suspected contact point of *Hoi Lung No.88* and workboat *Ng Mui* could have originated from the same source.

**5.4 Weather Conditions**

At the time of the accident, the weather condition covering the New Yau Ma Tei typhoon shelter was fine, with northerly to north-easterly wind about 6 to 9 km/hr (Beaufort Scale 2), and good visibility about 10 km. Sea condition inside the typhoon shelter was calm. The weather and sea conditions are not considered to have contributed to the accident.
5.5 Manning and certificate

The tugboat *Sun Lee 1*

.1 The *Sun Lee 1* should be manned by at least one coxswain, one assistant coxswain and one engine operator. The assistant coxswain is not required when the vessel is operated within Hong Kong waters.

.2 At the time of the accident, *Sun Lee 1* was manned by one coxswain and one engine operator while towing the dumb steel lighter *Hoi Lung No.88* from the typhoon shelter to Tsing Yi Island in Hong Kong. She complied with the minimum safe manning requirement of the vessel.

.4 The maximum number of persons permitted to carry by *Sun Lee 1* was 6 (six). At the time of the accident, there were only the Coxswain and the Engine Operator on board *Sun Lee 1*.

.5 The Coxswain of *Sun Lee 1* had worked on tugboats for 30 years, 10 years of which as master. He held a Local Certificate of Competency as Master of a vessel of 60 tons and under, issued by the Marine Department on 4 January 1999 and is valid until 25 January 2018. He is permitted to operate vessels up to and including 24 m in length. The length of *Sun Lee 1* is 22.52 m.

.6 The Engine Operator of *Sun Lee 1* had about 40 years of sea experience, 20 years of which were on board tugboats as an engine operator. He held a Local Certificate of Competency as engineer of vessel with engine power up to 150 BHP (British Horsepower) issued by the Marine Department on 3 April 1991. The certificate was upgraded to over 150 BHP on 11 November 1992 and is valid until 27 February 2021. He is qualified to serve as an engine operator on board *Sun Lee 1*.

The dumb steel lighter *Hoi Lung No. 88*

.7 No minimum safe manning is required for *Hoi Lung No.88*. The total number of persons permitted to carry on board was 15. At the time of the accident, there were two crewmembers and one person on board. The two crewmembers were tasked to make fast towline and assist in mooring operations. The other person was taking a ride on board the vessel to Tsing Yi Island.

The wooden workboat *Ng Mui*

.8 The minimum manning required for the workboat was one coxswain. The total number of persons permitted to carry by the workboat was 8 (eight). The
coxswain of *Ng Mui* held a Local Certificate of Competency as Master of a vessel of 60 tons and under issued by the Marine Department on 6 January 2009 and was valid until 31 December 2011. She was permitted to operate vessels up to and including 24 m in length. The length of *Ng Mui* was 7.55 m. The deceased had worked on workboats for more than 30 years.

### 5.6 Certificates of the vessels

All Certificates of Survey and Operating Licenses for the three vessels involved in this accident had been issued by the Marine Department and all are valid.

### 5.7 Navigational equipment of the vessels

Only navigation lights and sound signals equipment are required to be provided on board the three vessels. The working condition of these equipments on board *Sub Lee 1* and *Hoi Lung No.88* were checked after the incident and found satisfactory. Also, according to the witness statement provided by the resident living in the housing estate the One Silver Sea, he saw the navigation lights of workboat *Ng Mui* were on prior to the incident.

### 5.8 Towing of *Hoi Lung No.88* by *Sun Lee 1*

There was no specific plan for the towing voyage. The towline was about 35 to 40 m long and together with the lengths of the tug and the tow, the tug-and-tow stretched about 90 m. Prior to the accident, it was streaming at a speed of about 2 to 3 knots in the westerly direction inside the New Yau Ma Tei typhoon shelter towards the north entrance. As the New Yau Ma Tei typhoon shelter was designed for use by vessels of length overall less than 50 m, it appeared that the movement of the tug-and-tow inside the typhoon shelter would significantly affect the movement of other vessels.
5.10 Navigation Lights, Light and Sound Signals

Photograph of *Sun Lee 1* taken by Marine Department shortly after the accident showed that only one masthead light, sidelights, stern light and towing light were switched on (Fig. 11). Statements provided by the Coxswain and the Engine Operator of *Sun Lee 1* stated that they did not change the status of navigation lights on board after the accident.
According to Rule 24 of the International Regulations for Preventing Collisions at Sea (1972) (COLREGS), Sun Lee 1 was required to show two masthead lights on top of each other, side lights, a stern light and a towing light vertically above the stern light prior to commencement of the towing voyage. However, the tugboat exhibited only one masthead light, sidelights, a stern light and towing light at the time of the accident. While other vessel was in the visible arc of both sidelights and masthead light (total arc of the horizon of 225° from right ahead to 22.5° abaft the beam of either side of the vessel), she would be recognized as a power-driven vessel underway only and not engaged in towing of the dumb steel lighter Hoi Lung No.88. It would mislead coxswains of other vessels.
According to Rule 24 of the COLREGS, \textit{Hoi Lung No.88} was required to show sidelights and a stern light during the towage. They were being shown normally, but photographs of the vessel taken by Marine Department after the accident showed that the deck lights and the cargo floodlights mounted at the top of the A-frame of derrick crane were switched on (Fig. 12). Statements provided by the crew of the lighter stated that they did not change any lights on board after the accident.

According to Rule 20 (b) of COLREGS, \textit{Hoi Lung No.88} should not be exhibited with the deck lights and cargo floodlights during the towage since such lights would impair the visibility or distinctive character of her navigation lights and would interfere with the keeping of a proper look-out. It contravened Section 38 of the Merchant Shipping (Local Vessels) (General) Regulation (Cap. 548F), which stipulates that no person may use a light on or from a local vessel in the waters of Hong Kong in a manner which is likely to interfere with the safe operation of any other vessel or any aircraft.

Navigation lights exhibited by the workboat \textit{Ng Mui}

The workboat was less than 12 m in length and she was required to exhibit an all-round white light and sidelights in accordance with Rule 23 of COLREGS.
Statements provided by the engine operator of the fishing vessel and the resident of a nearby housing estate mentioned that the navigation lights displayed by the workboat were normal.

**Light and Sound signals**

.6 There is no evidence to prove that sound signal, or light signal for maneuvering or warning had been issued by any of the three vessels during the accident.

### 5.11 The courses of the vessels (Fig.-13)

**Tug-and-Tow**

.1 The tug-and-tow was underway inside the typhoon shelter on a westerly course towards the north entrance. The towline was about 35 to 40 m long. The stretch of the tug-and-tow was about 90 m east-to-west.

**Workboat**

.2 According to the information provided by the engine operator of the fishing vessel and the coxswain of a local vessel moored near to the south entrance of typhoon shelter, it is evident that the workboat departed at 2140 from the west landing step on the north waterfront of the typhoon shelter after disembarking the engine operator. She was then going to pick up the coxswain of a local vessel. It is deduced that the course of the workboat was originated from the west landing step on the north waterfront of the typhoon shelter at 2140. The vessel was moving southbound toward the central passage of the typhoon shelter.

**Crossing situation**

.3 The courses of the tug-and-tow and the workboat met in a crossing situation inside the typhoon shelter (Fig. 13). Under such circumstance, the workboat was the stand-on vessel and the tug-and-tow was the give-way vessel. The tug-and-tow should therefore keep clear from the workboat in accordance with Rule 15 of COLREGS. However, no action was taken by the Coxswain of Sun Lee 1, as he did not see the workboat crossing (see paragraph 5.12.1).
5.12 Look out

The tugboat *Sun Lee 1*

.1 The Coxswain of *Sun Lee 1* stated that he did not see the workboat and had no idea where she came from and how she approached the tug-and-tow, but he saw two workboats with white lights at the west landing area of north waterfront off housing estate the One Silver Sea. According to his statement, he did not use glasses or other corrective aid for lookout at the time of the accident. A sight test without aid was conducted for him at the Marine Department after the accident, and he failed the sight test for distance. The maintaining of proper lookout might be affected due to his weak eyesight at the time of accident. The Coxswain of the tugboat is considered failed to maintain a proper lookout in accordance with Rule 5 of COLREGS.

The workboat *Ng Mui*

.2 The coxswain of *Ng Mui* was experienced in operating her vessel inside the typhoon shelter and should be familiar with the frequent tug-and-tow operations in and out of the typhoon shelter. In the accident, it is evident that she was
trying to pass the stern of the tugboat. She might have been misled by the improper display of navigation lights of the tug-and-tow.

5.13 Fatigue, alcohol or drugs abuse

Coxswain of tugboat Sun Lee 1

1. The coxswain of Sun Lee 1 started working at about 2000 on 9 March 2011. He had taken a day off and had about 10 hours sleep. Fatigue was not an issue to him in this accident. And there is no evidence of alcohol and drugs abuse by him.

Coxswain of workboat Ng Mui

2. According to the family of the deceased coxswain of Ng Mui, her health and physical conditions were normal. It cannot be confirmed whether she suffered fatigue at work. The autopsy report of the coxswain found no alcohol and drug abuses.

5.14 Safe Speeds

The tug-and-tow

1. The speed of tug-and-tow moving in the typhoon shelter was about 2~3 knots as stated by the crew on board. It is not considered as an unsafe towing speed inside the typhoon shelter.

The workboat Ng Mui

2. The speed of the workboat Ng Mui cannot be determined. In view of the minor damage to the workboat’s gunwale and the mast, it is estimated that the speed of the workboat was not high.

5.15 Actions taken by the crew before and after the accident

The crew onboard the tug-and-tow

1. No collision avoidance action had been taken by the crew on board the tug-and-tow before the collision as the Coxswain of Sun Lee 1 did not see the workboat approaching.

2. After the collision, the crew on board Hoi Lung No.88 and the engine
operator of *Sun Lee 1* saw the workboat. But they could not see any person inside the workboat. They reported the incident to the coxswain of *Sun Lee 1* and afterward, the towing was stopped.

.3 *Hoi Ling No.88* dropped anchor at the scene after the towline was disconnected. *Sun Lee 1* was moored alongside the lighter.

.4 The coxswain of *Sun Lee 1* reported the incident to the company and the Police. The crew of the tug-and-tow did not conduct search and rescue operation.

**The workboat *Ng Mui***

.5 Before the collision, the coxswain of *Ng Mui* slowed down and reversed the engine. The rudder was put to starboard. However the above actions taken by the deceased coxswain of *Ng Mui* were already too late to avoid the collision.

.6 At the collision, the workboat’s mast firstly touched the towline and later collided with *Hoi Lung No.88*. The workboat was tilted heavily to starboard side under the impact by a much larger vessel. The coxswain of *Ng Mui* sustained head injury, according to the autopsy report, and drowned with the sunken vessel. (Fig.14 & Fig.15)

![Fig. 14 – Illustration of the workboat when she first touched the towline and then collided with the lighter](image-url)
5.16 Circumstances leading to the accident

.1 At about 2130 on 9 March 2011, the tugboat *Sun Lee 1* started to tow the dumb steel lighter *Hoi Lung No.88*, which was moored at the north east area of the New Yau Ma Tei typhoon shelter, to Tsing Yi Island.

.2 *Sun Lee 1* exhibited only one masthead light, side lights, a stern light and a towing light. The navigation lights displayed failed to comply with the COLREGS for towing operation. Instead of showing only sidelights and a stern light, *Hoi Lung No.88* also exhibited deck lights and cargo floodlights. Together with the abundant background lights in the typhoon shelter emitted from other vessels and the surrounding buildings, the visibility or distinctive character of the navigation lights of *Hoi Lung No.88* was impaired.

.3 The stretch of the tug-and-tow was about 90 m long inside the typhoon shelter and the vessels were moving in the westerly direction towards the north entrance of the typhoon shelter. The typhoon shelter is designed for vessels not more 50 m in length, and the maximum width of typhoon shelter is about 500m and the fairway inside is about 50m width.

.4 At about 2140, the workboat *Ng Mui* departed from the west landing-step on the north waterfront of typhoon shelter after sending a person ashore. She was proceeding to another vessel moored near to the south entrance of the typhoon shelter. *Ng Mui* was moving southbound to the central passage of the typhoon shelter.
The coxswain of the tugboat did not see the workboat approaching from the starboard side. He did not take any collision avoidance actions and no sound signal was sounded.

It was believed that the coxswain of the workboat was not aware of the tow behind the tug as she might probably have been misled by improper exhibition of navigation lights by *Sun Lee 1*, and that the visibility of the navigation lights of *Hoi Lung No.88* was impaired by her bright deck and floodlights as well as background lights from the surrounding.

The coxswain of *Ng Mui* decided to pass from starboard to port quarter of *Sun Lee 1*. (Paragraph 5.2.4)

The towline of the tug-and-tow touched the mast of the workboat. The coxswain of *Ng Mui* had probably felt the vibration of her vessel at the contact. The towline chafed on the mast holding back the movement of the workboat and pulled the masthead light off from the mast.

The coxswain of *Ng Mui* slowed down and attempted to reverse the engine. Before the workboat was able to move backward, *Hoi Lung No.88* under towing had arrived. At 2145, the starboard bow of *Hoi Lung No.88* crushed at the port gunwale of the workboat *Ng Mui*. The momentum of *Hoi Lung No.88* was so large that the workboat listed heavily to starboard side and capsized. The workboat eventually sank later at the position of 22° 18.89′N 114° 09.33′E.

The coxswain of *Ng Mui* sustained head injury at the collision and could not escape from the vessel. She was drowned in the accident.
6. Conclusions

6.1 The locally licensed wooden workboat *Ng Mui* collided with the locally licensed dumb steel lighter *Hoi Lung No.88* at about 2145 on 9 March 2011 within the New Yau Ma Tei Typhoon Shelter. At the time of collision, *Hoi Lung No.88* was being towed to Tsing Yi Island by the locally licensed tugboat *Sun Lee 1* while *Ng Mui* was proceeding from the west landing step on the north waterfront to a vessel moored near to the south entrance of the typhoon shelter. The approximate position of the collision was near the north entrance of New Yau Ma Tei Typhoon Shelter.

6.2 The coxswain of *Sun Lee 1* had not observed *Ng Mui* and thus did not take any collision avoidance action. He was also not aware of the collision until his engine operator and the crew of *Hoi Lung No.88* reported.

6.3 The starboard bow of *Hoi Lung No.88* sustained some scratches whilst *Ng Mui* sank shortly after the collision.

6.4 At the time of accident, the weather condition was fine with a good visibility. The wind was northerly to northeasterly at force 2 (about 6~9 km/hr) and the sea condition inside the Typhoon Shelter was calm.

6.5 The investigation into the accident revealed the following main contributory factors:

- Improper navigation lights were exhibited by *Sun Lee 1*;
- Deck lights and cargo floodlights were displayed by *Hoi Lung 88* during towing, the exhibitions of navigation lights were therefore impaired; and
- The coxswain of *Sun Lee 1* failed to maintain a proper lookout.

6.6 The investigation into the accident reveals the following safety factors:

- The coxswain of *Sun Lee 1* failed the sight test conducted for him after the accident. The coxswain’s eyesight of *Sun Lee 1* did not meet the eyesight standards for coxswain. He also did not use visual aid for look-out during navigation;
- The abundant background lights emitted from other vessels in the typhoon shelter and from the surrounding buildings might have affected the look-out of other vessels in the vicinity including the workboat *Ng Mui*; and
- The long stretch of tug-and-tow maneuvered inside the typhoon shelter at night increases the risk of collision.
7. **Recommendations**

7.1 Copy of the investigation report into the accident should be sent to the following parties advising them the findings of this accident investigation:

- The family of the coxswain of *Ng Mui*;
- The owner and the coxswain of *Sun Lee 1*;
- The person in charge of *Hoi Lung No.88*;
- The Shipping Division of Marine Department; and
- The Port Control Division of Marine Department.

7.2 The owner of tugboat *Sun Lee 1* is recommended to take appropriate measures to ensure that their coxswains must:

- Display proper navigation lights on the tugboat and vessel(s) being towed throughout the time of towing in compliance with Rule 24 of COLREGS;
- Perform vigilant look-out in compliance with Rule 5 of COLREGS, in particular, when carrying out towing operations inside typhoon shelters; and
- Meet the eyesight standards and use visual aids when necessary during navigation.
8. **Submissions**

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

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

- The owner, the operators and the Coxswain of *Sun Lee 1*;
- The owner and the person in charge of *Hoi Lung 88*; and
- The family of the deceased coxswain of *Ng Mui*.

8.3 No submission was received from the parties in paragraph 8.2.