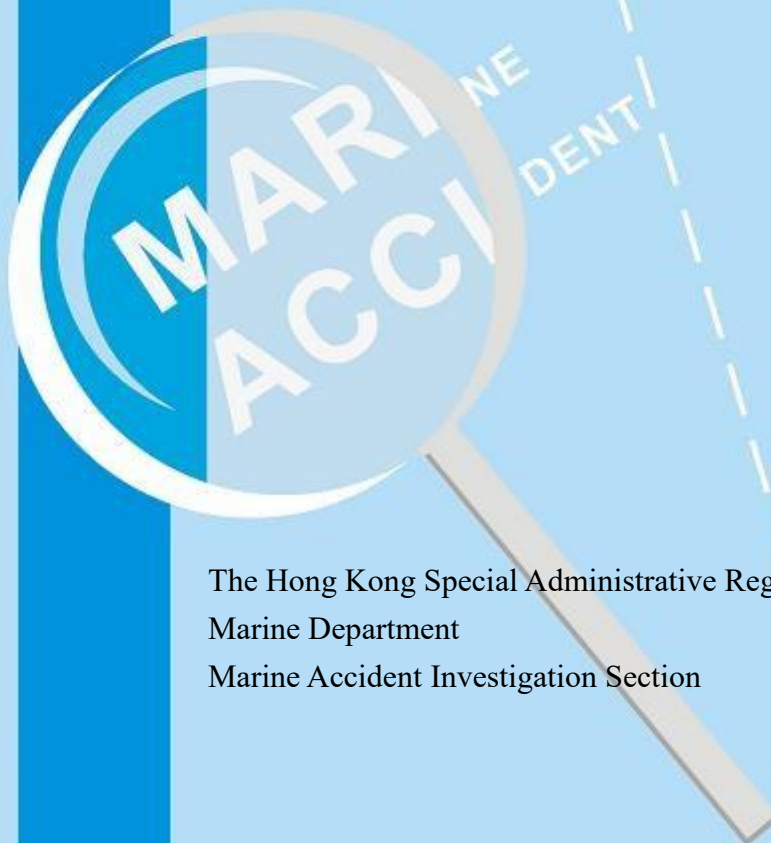




**Report of investigation into an oil spill
accident on board the Marshall Islands
registered container ship “*TS KOBE*”
at Kwai Chung Container Terminals,
Hong Kong on 20 August 2024**



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

17 April 2025

Purpose of Investigation

The purpose of this investigation, conducted by the Marine Accident Investigation Branch (MAIB) of Marine Department, is to understand the causes of the incident by investigating the circumstances leading to its happening with the aim of enhancing the safety of life at sea and preventing similar incidents from occurring 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.

Table of Contents	Page
Summary	1
1. Description of the vessel	2
2. Sources of evidence.....	4
3. Outline of events	5
4. Analysis	8
5. Conclusions	14
6. Recommendations	15
7. Submission	16

Summary

On 20 August 2024, the Marshall Islands registered container vessel "TS Kobe" (*the vessel*) arrived at No.10 Kwai Chung Container Terminal, Hong Kong (*the terminal*) for containers loading and unloading.

At 1730 hours on 20 August 2024, *the vessel* was made fast at *the terminal*. At 1845 hours, a locally licensed oil carrier "YEE LEE 2" (*the barge*) was alongside *the vessel's* port quarter for supplying the fuel oil ordered by the operating company of *the vessel* (*the operator*). Shortly, the chief engineer of *the vessel* (the C/E) assigned crew members to prepare for the bunkering. The No. 1 fuel oil tank (port) of *the vessel* (*the tank*) with maximum capacity of 219.94 cubic meters was selected to take in 180 metric tons (tons) of fuel oil. At about 2000 hours after the bunkering hose was connected between the manifolds of *the barge* and *the vessel*, the pump was started for the bunkering operation. At about 2200 hours the cargo officer¹ of fuel supplier (*the representative*) boarded *the vessel* from *the terminal* to sign the bunkering document. When *the representative* recognized that the C/E was not aware of 250 tons of the fuel oil to be delivered, he immediately requested the C/E to suspend the bunkering operation. Both *the representative* and the C/E went out of the accommodation and found that the fuel oil had been spilled on the port side main deck. At 2212 hours, the master of *the vessel* (the Master) was notified that an oil spill incident happened on board and part of the spilled oil was overflowed into the sea. The Master quickly reported the incident to the management company of *the vessel* (*the company*) and the Hong Kong Marine Department (HKMD). *The vessel's* crew was organized to combat the spilled oil. At 2232 hours, an oil response team from shore arrived at the scene to control and clean the spilled oil at sea.

The investigation revealed that the contributory factors of the accident were that the crew of *the vessel* did not fully adhere to the requirements of shipboard bunkering procedures to verify the bunkering quantity before bunkering and to monitor the bunkering progress closely on the site near *the tank*; the communication among all bunkering-related parties was ineffective; and the shipboard bunkering training to the ship crew was ineffective.

¹ The cargo officer was the representative of the fuel supplier and was responsible for the bunkering quantity measurement and signing of bunkering documents.

1. Description of the vessel

1.1 *The vessel*

Name of ship	: TS KOBE (Figure 1)
IMO number	: 9868182
Flag	: Marshall Islands
Port of registry	: Majuro
Type	: container ship
Classification society	: Nippon Kaiji Kyokai
Year of build, shipyard	: 2020, Kyokuyo Shipyard Corporation
Length overall	: 141.93 meters
Breath	: 22.50 meters
Depth	: 11.40 meters
Gross Tonnage	: 9,775
Net Tonnage	: 4,515
Engine type, power	: 1 set, MAN B&W 6S46ME-B8.5 7,300 kW
Registered owner	: Viscount Shipping Company Limited



Figure 1: *the vessel*

1.2 The barge

Name of ship	: YEE LEE 2 (Figure 2)
Certificate of ownership number	: B140477
Ship class	: Class II
Ship type	: Oil Carrier
Year of build	: 2011
Length overall	: 40.23 meters
Breath	: 16.50 meters
Depth	: 6.80 meters
Gross tonnage	: 1,119
Net tonnage	: 366
Engine type, power	: 2 sets of Caterpillar C32 634 kW each
Registered owner	: Keung Hao Limited



Figure 2: *the barge*

2. Sources of evidence

- 2.1 Information provided by the master, the crew members and *the company* of *the vessel*.
- 2.2 Information provided by the coxswain and *the representative* of *the barge*.
- 2.3 Information provided by Harbour Patrol Section and Pollution Control Unit of HKMD.

3. Outline of events

(All times were local time UTC + 0800 hours)

- 3.1 At 1000 hours on 20 August 2024, *the vessel* departed Nansha, China and berthed at *the terminal* by starboard side at 1730 hours after which the cargo operation commenced.
- 3.2 At 1845 hours *the barge* arrived at *the terminal* and came alongside *the vessel's* port quarter for supplying the fuel oil ordered by *the operator*². The C/E assigned *the vessel's* crew members to prepare for the bunkering. These included the preparation and signing of the bunker delivery document by the C/E, deck patrol by the second engineer, sounding the oil level of *the tank* by the third engineer (the 3/E), site monitoring at the manifold station by the Fitter and the Electrician of *the vessel*.
- 3.3 At 1847 hours two crew members of *the barge* boarded *the vessel* to connect the bunkering hose with *the vessel's* manifold. At about 2000 hours after the C/E communicated with the crew members of *the barge*, the bunkering operation commenced with a low pumping rate initially and then increased to the normal rate of 90 – 95 tons per hour.
- 3.4 At about 2200 hours, *the representative* boarded *the vessel* from *the terminal* and notified the C/E that the bunkering quantity was 250 tons. The C/E informed *the barge* to stop pumping immediately and instructed the 3/E to check the oil level in *the tank* as the quantity of 180 tons was suggested by the C/E earlier and had been approved by *the operator*. Both of them rushed out of accommodation to check the deck condition and at the same time, the 3/E reported that *the tank* was full and the fuel oil was spilled from the sounding pipe and *the tank's* air vents.
- 3.5 At 2212 hours the Master was notified that an oil spill happened onboard and the spilled oil was partly overflowed from the port sheer strake³ into the sea (Figure 3). At the same time *the vessel's* crew was organized to

² On 6 August 2024, *the operator* informed the Master that 250 tons of fuel oil was arranged and would be supplied to *the vessel* in Hong Kong on 19 August 2024. The quantity was later reduced to 180 tons as suggested by the C/E to avoid clean fuel mixing with the residual left in *the tank*.

³ The top strake of a ship side shell plating.

respond to the oil spill accident.



Figure 3: hull stained by the overflowed oil

- 3.6 At 2216 hours the Master reported the incident to *the company* and HKMD. *The vessel's* crew commenced to collect the spilled oil on the main deck and the 3/E transferred about 20 cubic meters fuel oil from *the tank* to No.3 starboard fuel oil tank (Figure 4) to avoid further overflowing from *the tank*. At 2232 hours, an oil response team from shore deployed by the Pollution Control Unit of HKMD arrived at the scene.



Figure 4: deck condition after the cleaning up of the oil spill

- 3.7 The fuel oil spilled into the sea causing contaminations of *the vessel* and at least one nearby vessel, sea surface and the face of the terminal (Figure 5) though oil boom was deployed around *the vessel* to prevent the spilled oil from spreading over the sea surface.



Figure 5: pollution to various locations by the spilled oil

3.8 At 2359 hours on 25 August 2024 *the vessel* sailed from Hong Kong.

4. Analysis

Certification and manning

- 4.1 The statutory trading certificates of *the vessel* were valid at the time of the accident. *The vessel* was manned by 19 crew members fulfilling the requirements stipulated in the Minimum Safe Manning Certificate of *the vessel* issued by the Republic of the Marshall Islands on 19 September 2022.
- 4.2 The Master had about nine years of experience as a master. He possessed a master Certificate of Competency, valid until 27 March 2029.
- 4.3 The C/E was just promoted and he had about one and half months of experience as a chief engineer. He possessed a chief engineer Certificate of Competency, valid until 1 March 2027.
- 4.4 The 2/E had about three years of experience as a second engineer. He also possessed a chief engineer Certificate of Competency, valid until 17 April 2028.
- 4.5 The 3/E had about one years of experience as a third engineer. He possessed a third engineer Certificate of Competency, valid until 7 December 2026.
- 4.6 There were no abnormalities noted with regard to the certification and experience of the crew members concerned.

Fatigue, alcohol and drugs abuse

- 4.7 There is no evidence to show that the crew on board *the vessel* suffered from either fatigue at work or abuse of alcohol and drugs.

Quantity of fuel oil overflowed into the sea

- 4.8 The investigation showed that *the tank* was selected for receiving the fuel oil, which was cleaned as much as practicable by the ship crew though about 500 liters oil residue was left in *the tank* before bunkering. The full

volume capacity of *the tank* was 219,940 liters. Hence, the capacity of *the tank* to hold the fuel oil from *the barge* was 219,440 litres.

- 4.9 According to the Bunker Delivery Note, totally 226,351 liters of fuel oil was pumped into *the tank*, which was exceeding *the tank's* capacity, i.e. about 6,911 liters of fuel oil was escaped from *the tank* via air vents and the sounding pipe to the main deck.
- 4.10 The spilled oil spread and accumulated on the main deck as a result of the fuel oil being kept pumping in. The sheer strake of *the vessel* raised about 75 mm in height over the main deck (Figure 6) and the oil spreading on the port main deck covered a length of about 57 meters (Figure 7) and a width of about 2.1 meters as measured from the ship side to the coaming. Such construction would be able to contain an approximately 8,977.5 liters of spilled oil if *the vessel* was maintained in an upright position and all scuppers were plugged properly, i.e. the spilled oil mentioned in paragraph 4.9 above would be contained on board theoretically (Figure 8).
- 4.11 However, according to the stained condition of the port hull of *the vessel* (Figure 9), the affected area was between frames nos. 40 to 135, i.e. between Nos. 3 to 7 cargo holds. The port hull areas along the main deck pedestals (Figures 10) were seriously stained by the spilled oil. The spilled oil was firstly flowed to port and to the aft on the main deck but the flow was disturbed by the pedestals causing the oil accumulating at the pedestal root area. Subsequently, the oil flow was divided into two parts, one part was bypassing the pedestal to continue spreading on deck, another part was overflowing the sheer strake directly into the sea. It could be deduced that *the vessel* was listed to portside and trimmed by stern slightly at the time of the accident.
- 4.12 Due to the cargo operation was in progress during bunkering, the floating condition of *the vessel* could not be ascertained, thus the liquid holding capacity of the main deck at the accident time could not be calculated. As from paragraph 4.9 above, there was about 6,911 liters of fuel oil spilled from *the tank*, part of which run into the sea from the port main deck with unknown quantity.



Figure 6: height of sheer strake

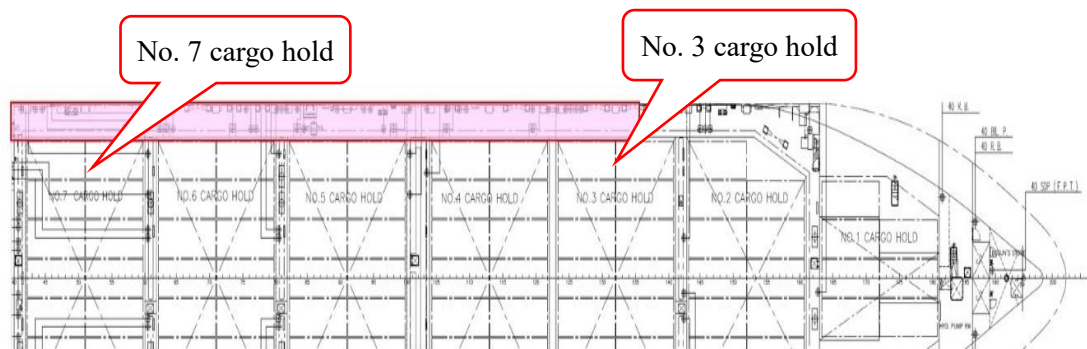


Figure 7: oil spreading on deck from frames Nos. 40 to 135

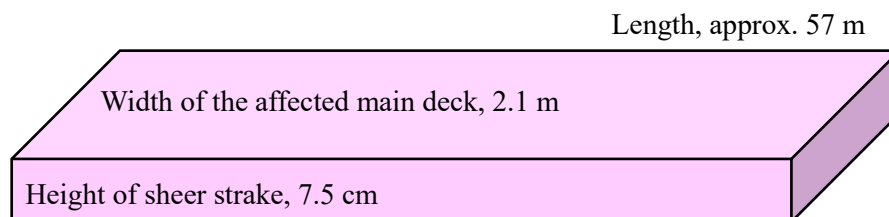


Figure 8: volume calculation model of the liquid holding capacity of the affected port main deck, i.e. $57\text{m} \times 2.1\text{m} \times 0.075\text{m} \times 1000 = 8,977.5$ Litres



Figure 9: stained hull condition (port side)



Figure 10: port main deck

Bunkering procedures onboard the vessel

- 4.13 Section 4.9.3 of shipboard QHSE (Quality, Health, Safety, and Environment) Manual requires that the “Bunkering Plan / Checklist (s – 4.13 C)” (*the checklist*) should be complied with in full on each occasion when vessel receives bunkers.

- 4.14 The investigation found that *the checklist* was prepared by the C/E and approved by the Master, it was signed by *the representative* on 20 August 2024 after he boarded *the vessel*. Among the items of *the checklist*, the columns of “Agreement sheet part 1 and part 2” were left empty, i.e. the quantity (Tonnes and Volume) of bunkers to be transferred was unknown. As mentioned in paragraphs 3.3 & 3.4 above, *the representative* boarded *the vessel* two hours after bunkering was commenced when he informed the C/E that amount of fuel oil to be delivered was 250 tons.
- 4.15 In addition, section 4.9.1 of the bunkering procedures required that an engineer officer was required on deck, keeping in view that he can observe and take immediate and effective action as necessary. The investigation found that the 3/E was assigned to check the oil level at *the tank*’s sounding pipe area, but he did not keep checking the oil level by sounding the pipe after the oil level reached 6.5 meters which was about the oil level corresponding to 180 tons. He assumed the bunkering operation was going to complete soon until he was alerted by the call of C/E via walkie-talkie.
- 4.16 It could be concluded that the crew of *the vessel* did not fully adhere to the requirements of shipboard bunkering procedures to verify the bunkering quantity before the bunkering operation and to monitor the bunkering progress closely during the operation as required. If the bunker quantity had been checked beforehand or the 3/E had monitored the oil levels closely at the site and had taken immediate action, i.e. informed *the barge* to reduce the pumping rate from 90-95 to about 15 tons per hour when *the tank* was filled up to 80% of its capacity as required by the bunkering plan, the oil pollution accident might have been avoided.

Ineffective Communication among the bunkering-related parties

- 4.17 As mentioned in paragraph 3.4, the original quantity of the fuel oil ordered by *the operator* was 250 tons, which was reduced to 180 tons under the C/E’s suggestion and was then accepted by *the operator*. However, *the representative* was instructed to deliver 250 tons fuel oil to *the vessel* and he relayed the same information to *the barge*. The crew of *the barge* who received an incorrect information of bunkering quantity did not verify and check with the C/E before bunkering.

- 4.18 The investigation showed that the parties related to the bunkering operation including the crew members of *the vessel* and *the barge*, the bunkering company (*the representative*) and *the operator* lacked effective communication about the subsequent change of bunkering quantity, as a result *the representative* and *the barge* were unaware of the change. Conclusively, the communication among the bunkering-related parties was ineffective.

Crew Training on bunkering operation

- 4.19 As mentioned in paragraph 4.13 above, the requirements of bunker procedures are included in Section 4.9 of QHSE. The investigation revealed that all officers and engineers of *the vessel* had completed the familiarizations by reading the shipboard QHSE with signatures as a proof of understanding the contents of QHSE manual. The investigation also revealed that the pre-bunkering meeting was conducted on 19 August 2024, i.e. one day before the accident, which included the issues on the confirmation of the quantity of bunker oil and the understanding of the responsibilities for all involved crew members.
- 4.20 However, the C/E did not confirm the bunker quantity with *the barge* crew or *the representative* before bunkering, the 3/E did not monitor the oil level in *the tank* closely on the site, and *the checklist* was signed without confirmation to the bunker quantity (paragraph 4.14 refers). All these showed the training of *the vessel's* crew on bunkering operation was ineffective.

5. Conclusions

- 5.1 On 20 August 2024, *the vessel* arrived at *the terminal* for containers loading and unloading.
- 5.2 At 1730 hours on 20 August 2024, *the vessel* was made fast at *the terminal* and at 1845 hours *the barge* was alongside *the vessel's* port quarter for supplying the fuel oil ordered by *the operator*. Shortly the C/E assigned crew members to prepare for the bunkering operation. *The tank* was selected to take in the fuel oil. At about 2000 hours after the bunkering hose was connected between the manifolds of *the barge* and *the vessel*, the pump was started for the bunkering operation. At about 2200 hours *the representative* boarded *the vessel* from *the terminal* to sign the bunkering document. When *the representative* recognized that the C/E was not aware of 250 tons of fuel oil to be delivered, he immediately requested the C/E to suspend the bunkering operation. Both *the representative* and the C/E went out of the accommodation and found fuel oil was spilled on the port main deck. At 2212 hours, the Master was notified that an oil spill incident happened on board and part of the spilled oil was overflowed into the sea. The Master quickly reported the incident to *the company* and HKMD. *The vessel's* crew was organized to combat the spilled oil. At 2232 hours an oil response team from shore arrived at the scene to control and clean the spilled oil at sea.
- 5.3 The investigation revealed that the contributory factors of the accident were:
- (i) the crew of *the vessel* did not fully adhere to the requirements of shipboard bunkering procedures to verify the bunkering quantity before bunkering and to monitor the bunkering progress closely on the site near *the tank*;
 - (ii) the communication among all bunkering-related parties was ineffective; and
 - (iii) the shipboard training on bunkering was ineffective.

6. Recommendations

- 6.1 The management company of *the vessel* should issue a circular informing all masters, officers and crew members of its fleet of the investigation findings and lessons learnt from this accident and instruct them to:
- (i) strictly adhere to the requirements of shipboard bunkering procedures to verify the bunkering quantity before bunkering and to monitor the bunkering progress closely on the scene;
 - (ii) ensure the establishment of an effective communication among all bunkering-related parties for the safe and smooth bunkering operation; and
 - (iii) ensure an effective training to ship crew on bunkering operation.
- 6.2 A Hong Kong Merchant Shipping Information Note is to be issued to promulgate the lessons learnt from the accident.

7. Submission

- 7.1 The draft investigation report, in its entirety, was sent to the management company and the master of *the vessel*, the Maritime Administration of the Republic of the Marshall Islands for comments.
- 7.2 By the end of consultation, comment from the company was received and responded, the contents of the report had been amended as appropriate.