

# **Executive Summary**

## **1. Brief description of the marine occurrence**

On February 1st, 2022 at 1413 LT (local time), the Denmark-flagged oil products tanker "TORM EMILIE" (with a gross tonnage of 42484 and official number 9277785, homeported in Copenhagen) made contact with the caisson of the old south breakwater on the starboard side of its hull. This contact caused structural damage and water leakage, resulting in the ship listing to the starboard side at about 14 degrees. No pollution or injuries were reported. Please see Figure 1 for an illustration of the actual voyage paths of "TORM EMILIE" and another container ship of "SEATTLE C".

According to the voyage plan, at about 1000 LT, Jan. 11<sup>th</sup>, the "TORM EMILIE" loaded approximately 56,958 metric tons of naphtha (naphtha) at Mina Shuaiba, Kuwait, and proceeded to pier no.104, the Port of Kaohsiung for unloading. The voyage plan showed that the ship stopped in Singapore to perform fuel filling and material replenishment operations. After that, she continued sailing to Kaohsiung. Before arriving at the Port of Kaohsiung, the calculated drafts were 12.2 meters at the bow and 12.5 meters at the stern.

At 1359:49 LT on February 1st, 2022, the ship arrived at the pilot boarding ground, then two pilots (hereinafter referred to as chief pilot, deputy pilot) embarked the ship, the Master and two pilots performed the exchange of information (MPX) at the bridge. In the meantime, the ship was located southbound on two-way routes, and due to the influence of currents, the heading of the ship was about 10 degrees southward from the course over the ground.

At 1408:45 LT, the "TORM EMILIE" was located 0.8 NM away from the new south breakwater when the VTS officer informed the pilots via VHF that the container ship Seattle C had passed through the Vessel Traffic Center (VTC). At

1409:06 LT, the bow of the "TORM EMILIE" had just passed the new south breakwater, and it was close to the southern boundary of the two-way routes. Both ships were heading towards each other. Between 1413:50 LT to 1414:15 LT, the starboard side of the hull contacted with the caisson of the old south breakwater, causing structural damage and water leakage. As a result, the ship listed to the starboard side at about 14 degrees. (refer to fig. 2)

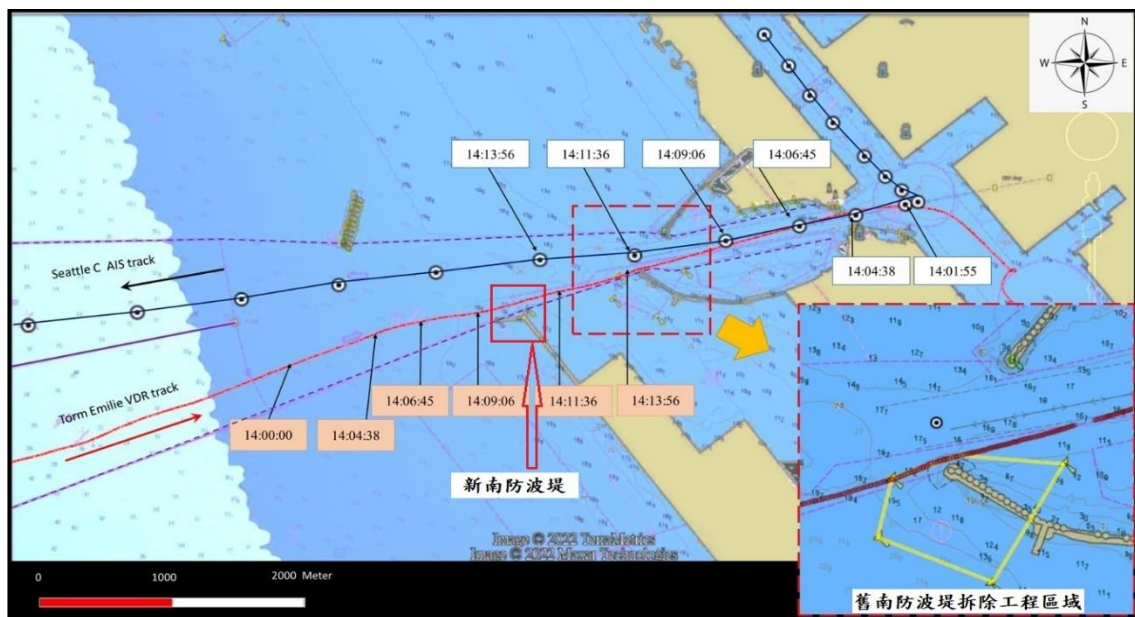


Figure 1 actual paths of TORM EMILIE and SEATTLE C.



Figure 2 The TORM EMILIE after first contact, listed to starboard side.

## 2. Findings

On the basis of comprehensive factual information and analyses, TTSB proposes the following 18 findings from the final report, and 8 safety recommendations issued to the related organizations. The findings are presented in three categories: **findings related to probable causes, findings related to risk, and other findings.**

### **Findings related to probable causes**

1. After the chief pilot boarded the ship and arrived at the bridge to take control of the ship's maneuvering, they did not stop in open and safe waters to wait for clearance of the two-way routes. Instead, the chief pilot ordered the ship to maintain "Full Ahead" speed without slowing down. The ship continued to drift southward and failed to maintain its position on the central line of the route, eventually entering the waters of the old south embankment work area and colliding with the caisson of the old south breakwater. This collision caused the ship damaged the ballast tank, resulting in flooding and listing to starboard side.
2. Both pilots did not complied with the regulations for overtaking and meeting ships in the two-way routes of the Port of Kaohsiung. The chief pilot did not wait for the outbound ship "SEATTLE C" to leave the two-way route before commanding the "TORM EMILIE" to enter the port.
3. After the two heading meet, the Master of the "TORM EMILIE" reminded the pilots that the water depth in the area was 10 meters. However, the chief pilot did not realize the risk and did not correct the ship's position back to the centerline of the route. The chief pilot failed to fulfill their responsibilities and obligations as a pilot and lacked vigilance in maintaining the port route and ensuring navigation safety. As a result, the ship made contact with a caisson

under the water surface, causing the ship list to starboard side by about 14 degrees.

### **Findings related to risk**

1. Both pilots were not fully familiar with the progress of the demolition work at the second entrance of the old South Breakwater in the port, nor were they aware of the safety precautions for pilotage during the construction period before entering the port. As a result, they did not meet the requirements of their practice certificates, which state that they should be familiar with “the designated pilotage district”.
2. The Kaohsiung Harbor Pilot Association only posted a "notice to mariners" on the bulletin board, and the administrator of the pilot office did not provide critical information to the pilots, such as the control area of the port construction zone, precaution buoys, construction period, and bathymetric charts. They also failed to confirm whether the pilots were familiar with the construction progress on the old South Breakwater.
3. The Kaohsiung Harbor Pilot Association did not establish a standard procedure for handling "notice to mariners" and bathymetric charts, nor did they compile this information for the pilots to become familiar with.
4. The VTS system at the Port of Kaohsiung did not establish a precautionary area for the construction zone, which left VTS officers with no rules to follow. This increased the risk of ships making contact with unknown objects when passing through the construction zone.
5. Although the Port of Kaohsiung, Taiwan International Ports Corporation, Ltd., submitted official letters to the Maritime Port Bureau, MOTC, to announce notice to mariners about the construction zone at the Port of Kaohsiung, there were no complete regulations and relevant procedures for safety management.

Furthermore, the installation of precaution buoys did not refer to the Technical Specifications Regarding Deployment of Aids to Navigation, which made it difficult to establish standard procedures for accepting checks and continuous monitoring.

6. Recently, there have been several marine casualties and incidents at the Port of Kaohsiung, indicating a frequent lack of compliance with regulations by some pilots and the presence of an unsafe pilotage culture. The supervision, management, and punishment of pilots by the marine authority have not been effective in improving the quality of pilotage and ensuring its safety.

### **Other findings**

1. The Master and crew of the “TORM EMILIE” had valid certificates issued by the flag state Denmark. The rest hours of the Master and the crew on duty on the bridge for this voyage was normal.
2. Both pilots embarked the “TORM EMILIE” had hold valid certificates issued by the flag state Taiwan, R.O.C. The rest hours before the marine casualty was normal.
3. At the time of occurrence, the wind direction was north-north-east, the wind force was level 1, the wave height was 1 meter, the south current was 0.6 meters per second, and the visibility was good.
4. When the “TORM EMILIE” arriving the Port of Kaohsiung, draft fore 12.2 meters and aft 12.5 meters.
5. Before the occurrence, both pilots boarded the "TORM EMILIE." However, the chief pilot did not communicate with the Master of "SEATTLE C" to ensure their navigational intentions, which could have impacted the navigational intentions and maneuvering pressure of the Master of "SEATTLE C." This increased the risk of navigation in the compulsory pilotage area.

6. Before the occurrence, the water depth in the two-way routes at the second entrance of the Port of Kaohsiung exceeded 16 meters. The water depth near the mouth of the old south breakwater and extended to the east ranged from around 7 meters to 16 meters.
7. The Navigating Rules at Kaohsiung Port<sup>1</sup>, and VTS officer manual were very different from the IMO A.1158 (32), which may affect the performance of VTS officers' duties.
8. Before the occurrence, the Maritime Port Bureau, MOTC issued a total of three notice to mariners, the information contained the old south-breakwater construction zone at the second entrance of the Port of Kaohsiung, and installation of four precaution buoys.
9. The Technical Specifications Regarding Deployment of Aids to Navigation for the installation of precaution buoys do not stipulate the size of the buoys and its visibility of the light. As a result, the manufacturers of construction and supervisors have no relevant specifications to follow, and they have to determine warning specifications themselves, resulting the four precaution buoys with limited functions.

## **Transportation Safety Recommendations**

### **To Kaohsiung Harbor Pilot Association**

1. Pilots are required to comply with the Rules of Navigating at the Port of Kaohsiung, which includes not overtaking or meeting other ships on the two-way routes. They must wait for the ship to leave the breakwater and approach the outboard finish line of the two-way routes before entering the port,

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<sup>1</sup> <https://kh.twport.com.tw/en/cp.aspx>

confirmed by the VTS officer, and ensuring that the ship is located on the centerline of the route. This is necessary to ensure navigation safety for ships approaching and leaving the port.

2. To establish information management norms and standard operating procedures for the port constructions, so that pilots should familiar with the critical information of the port's construction, and ensure the safety of pilotage.

#### **To Port of Kaohsiung, Taiwan International Ports Corporation Ltd.**

1. Before revising the Technical Specifications Regarding Deployment of Aids to Navigation, review the various navigation aids in the port area with reference to the technical specifications or guidelines for route markings in other countries, to confirm that the facilities are operating normally; and formulate necessary inspection plans.
2. With reference to IMO A.1158 (32), revise the VTS officer manual and compile standard communication terms, so that the VTS officer has a clear, positive and professional attitude, and continues to provide the Master or pilot with proper information, advice, warnings and instructions.

#### **To Maritime Port Bureau , MOTC**

1. To supervise the pilots, to establish critical information management norms and standard operating procedures for constructions in the port, so that pilots shall familiar these critical information, and to ensure the safety of pilotage.

2. Strictly supervise the pilots, they shall abide by the principle of mutual cooperation with bridge resources management during pilotage, make the full use of electronic charts and give the full advantages of professional pilots to ensure the safety of pilotage in the port.
3. The Maritime Port Bureau and the MOTC shall implement supervisory responsibilities, strictly supervise the implementation of pilotage, ensure the quality of pilotage, and revise pilot's reward and punishment management rule, include the withdrawal mechanism of pilots, to enhance the safety of pilotage in the ports.
4. With reference to other countries' technical specifications or guidelines for route markings, to revise the Technical Specifications Regarding Deployment of Aids to Navigation, to standardize the size of precaution buoys and its visibility of lights, to facilitate the effective use of the caution function of navigation aids.

Full final report is in Chinese only and available for download at  
website: <https://www.ttsb.gov.tw>