## General Cargo Ship Tai Gang Major Marine Occurrence

# Executive Summary

At approximately 0530 on 6 January 2020, the general cargo ship Tai Gang, owned by Feng Ze Shipping Co., Ltd. of Fujian Province, China, registered at Quanzhou, with a gross tonnage of 2,994 and IMO No. 9550462, boarded a pilot at the entrance of Port of Kaohsiung and proceeded inbound. Visibility within the port was poor at the time. During a turning maneuver under pilotage, Tai Gang collided with the floating dock Jong Shyn No. 8, owned by Jong Shyn Shipbuilding Group at the Shun Rong Shipyard. The occurrence resulted in damage to the sludge oil tank of the floating dock and damage to the bulbous bow of Tai Gang. No injuries or environmental pollution occurred.

In accordance with the Transportation Occurrence Investigation Act, Taiwan, and the definition of major transportation occurrences specified therein, the Taiwan Transportation Safety Board was the independent agency in charge of investigating the marine accident. The organizations and agencies invited to participate in the investigation included the Maritime and Port Bureau of the Ministry of Transportation and Communications, Taiwan International Ports Corporation, Ltd., Kaohsiung Harbor Pilot Office and Feng Ze Shipping Co., Ltd.

After comprehensive investigation and analysis of the factual data, a total of 7 findings and 7 safety recommendations were obtained.

**The investigation identified 7 findings:**

1. The navigation regulations of Kaohsiung Port did not include restricted visibility within the inner harbor as a condition for vessel traffic service. In addition, the port lacked visibility observation items and facilities,

making it unable to provide real-time visibility information.

2. Although the occurrence pilot was aware of the restricted visibility conditions within the inner harbor, an appropriate safe speed was not maintained, resulting in the inability to stop the ship before the collision occurred.

3. Under conditions of restricted visibility, the bridge team of TAI GANG failed to make effective use of radar lookout and continued navigating primarily by visual lookout, preventing the team from recognizing the risk of collision with the floating dock after turning.

4. After visibility rapidly deteriorated, the occurrence pilot failed to apply bridge resource management principles effectively and instead relied solely on personal experience and judgment to initiate an early turn, leading to the collision.

5. The continuing professional training program for pilots in Taiwan did not include content aimed at continuously enhancing pilots' professional competence and updating technical knowledge, and therefore did not conform to relevant International Maritime Organization training recommendations for pilots.

6. During the period of rapidly deteriorating visibility, the Kaohsiung Port VTS operator failed to continuously monitor the movements of TAI GANG and provide timely navigational safety information to the ship or the pilot to reduce the risk of collision.

7. The operating manual for Kaohsiung Port VTS lacked specific requirements regarding "monitoring ship movements" and did not contain provisions for providing visibility information.

## Safety Recommendations

### To Feng Ze Shipping Co., Ltd.

1. Promote effective bridge resource management among ships in the company fleet. Under conditions of restricted visibility, ship bridge teams should fully utilize radar and related navigational equipment to ensure navigational safety.

### To Kaohsiung Harbor Pilot Office

1. Establish guidelines in accordance with international standards and require pilots, during pilotage operations, to comply with the principles of cooperation under bridge resource management. Under conditions of restricted visibility, pilots should fully utilize radar and related navigational equipment to ensure navigational safety.

### To Taiwan International Ports Corporation, Ltd.

1. Assess and strengthen training programs for VTS operators at all ports regarding the monitoring of ship movements within port areas, the provision of real-time vessel traffic safety information services, and the correct collection, analysis, interpretation, and timely response to navigational information in order to enhance port safety.
2. Review vessel traffic service regulations and develop necessary measures to incorporate restricted visibility within port areas as a traffic control consideration. Relevant training manuals and training programs should be developed with reference to International Maritime Organization Resolution A.857(20).

**To Maritime and Port Bureau of the Ministry of Transportation and Communications**

1. Supervise pilots under its jurisdiction to comply with the principles of cooperation under bridge resource management during pilotage operations. Under conditions of restricted visibility, pilots should fully utilize onboard radar and related navigational equipment to ensure navigational safety.

2. Incorporate into Taiwan's pilotage regulatory framework the knowledge and skill training requirements for pilots specified in Annex 1 of International Maritime Organization Resolution A.960(23), concerning continuing professional development and training for pilots, in order to ensure pilots maintain proficiency and updated knowledge.

3. Plan and implement periodic refresher training for pilots, at intervals not exceeding five years, and ensure that continuing training programs maintain pilots' professional competence, operational proficiency, and updated knowledge in accordance with international standards, thereby enhancing the safety of navigation in Taiwan's international commercial ports.

**Note:** The final report of this occurrence investigation is published in Chinese. To facilitate understanding for non-Chinese readers, the Executive Summary has been translated into English. While every effort has been made to ensure accuracy, discrepancies may occur. In the event of any inconsistency, the Chinese version shall prevail.