Container Ship OOCL Durban Major Marine Occurrence

Executive Summary

At 1127 on 3 June 2021, the Panama-flagged container ship OOCL Durban, with a gross tonnage of 87,697 and IMO No. 9567673, entered the Second Harbor Entrance of Port of Kaohsiung under pilotage. While passing Berth 70, OOCL Durban's starboard side collided with the berthed container ship YM Constancy and struck a quay crane. As a result of the occurrence, OOCL Durban sustained structural damage to the starboard side of the bridge and damage to the starboard accommodation ladder; YM Constancy sustained scraping damage to the port-side hull and damage to containers onboard; two quay cranes at Berth 70 were damaged; several containers were damaged; and one quay crane operator was injured. No environmental pollution was reported.

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, Port of Kaohsiung, Taiwan International Ports Corporation, Ltd., Taiwan International Ports Services Corporation, Ltd., OOCL (Taiwan) Co., Ltd., Yang Ming Marine Transport Corporation, Hong Ming Stevedoring Co., Ltd. and Kaohsiung Harbor Pilot Office.

After comprehensive investigation and analysis of the factual data, a total of 11 findings and 7 safety recommendations were obtained.

The findings related to probable causes are as follows:

1. The initial helm angle applied by the pilot at the commencement of the turning maneuver, together with the ship's speed at the time, produced an insufficient rate of turn. This prolonged the turning time and increased the turning radius, resulting in OOCL Durban colliding with the berthed YM Constancy and striking a shore-based quay crane at a speed of 3.9 knots.

2. The pilot did not adopt a planned safe operating procedure appropriate for berthing a large vessel, but instead relied solely on personal experience and attempted to execute the maneuver by direct helm action alone. As a result, the turning radius became excessively large during the maneuver, leading to the collision.

3. The pilot initiated the turn by helm action at a ship speed of approximately 5.5 knots and used ahead propulsion to assist the maneuver; however, the ahead propulsion provided no practical turning benefit. Only at speeds below 5 knots can ahead propulsion effectively increase the rate of turn and reduce the turning radius.

4. Although the pilot involved in this occurrence was highly experienced, planning and utilization of harbor tugs for assisting the maneuvering of a large vessel within the port were inadequate.

The findings related to risk are as follows:

1. The pilot's situational awareness during pilotage was inadequate, including the failure to arrange two tugs in advance, the failure to ensure that tug lines were made fast before the maneuver, and the timing of the use of ahead propulsion.

2. The master and the pilot did not adequately assess the risk of loss of

steering effectiveness, which was not consistent with the safety information exchange requirements set out in International Maritime Organization Resolution A.960(23), thereby increasing the risk of collision or contact during the turning maneuver in the Second Harbor Entrance of the Port of Kaohsiung.

3. The berthing plan provided by the pilot was a general mooring arrangement applicable to vessels of various sizes, rather than a dedicated berthing and maneuvering plan tailored for a large vessel of this type.

4. The port and starboard diverging fairways ahead of the turning basin at the Second Harbor Entrance of the Port of Kaohsiung are both lined with container berths after a vessel turns to port, where ships are frequently berthed and cargo operations are ongoing. This effectively narrows the available maneuvering space and increases turning risk. Relying solely on a pilot's personal experience to maneuver a large vessel in such circumstances is inherently hazardous.

The other findings are as follows:

1. The Port of Kaohsiung is an international commercial port designated as a compulsory pilotage area under the Commercial Port Act. Over the past three years, multiple major marine occurrences have occurred within the port, several of which were associated with vessels under pilotage. Frequent pilotage-related occurrences within the port may give rise to concerns regarding port navigational safety.

2. The pilot involved in this occurrence had been on duty for several consecutive days and did not obtain sufficient continuous rest periods during that period to mitigate fatigue. As a result, the pilot's fatigue risk index increased, with the probability of significant fatigue during duty

on the day of the occurrence assessed at 31.13 percent.

3. The competent authority has not established requirements governing maximum working hours, minimum guaranteed rest periods, or fatigue management guidance for pilots. Consequently, pilot offices at various ports have no regulatory framework to follow, making it difficult to effectively manage pilot fatigue risk.

Safety Recommendations

To Synergy Maritime Private Limited

1. Promote and ensure implementation across the fleet of effective master–pilot information exchange. When large vessels are maneuvering through turning sections of port fairways during inbound navigation, appropriate tug assistance shall be properly arranged and utilized to ensure safe navigation within the port.

To Kaohsiung Harbor Pilot Office

1. Establish a safety-oriented pilotage framework and develop operating procedures consistent with safety standards by incorporating the planned use of harbor tugs for large vessels into the pilot's berthing and maneuvering plan, as well as into the master–pilot information exchange process.

2. Require pilots under its jurisdiction to adhere to the principle of mutual cooperation during pilotage operations and to adequately arrange for the use of harbor tugs to assist large vessels, in order to ensure navigational safety within the port.

3. Assess staffing resources and reduce fatigue arising from consecutive pilotage assignments involving intensive working hours, in order to

mitigate the risk of accidents.

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

1. Establish requirements for the Kaohsiung Harbor Pilot Office that, when large vessels enter the Port of Kaohsiung and maneuver through the fairway off Berth 70, appropriate tug assistance shall be arranged and utilized for turning operations in order to prevent the recurrence of similar occurrences.

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

1. Coordinate with Taiwan International Ports Corporation, Ltd. to require the Kaohsiung Harbor Pilot Office to establish safety procedures under which, when large vessels maneuver through the turning section off Berth 70 at the Port of Kaohsiung, appropriate harbor tugs shall be properly arranged and utilized to assist pilotage operations.
2. Assist pilot offices at various ports in reviewing pilot duty rosters in order to reduce fatigue arising from consecutive pilotage assignments and mitigate the risk of vessel accidents associated with pilot fatigue.

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.