MARS – Lessons Learned

MARS Report No 387 January 2025

MARS 202501

Collision causes 15 fatalities

As edited from MAIS (Hong Kong SAR) report

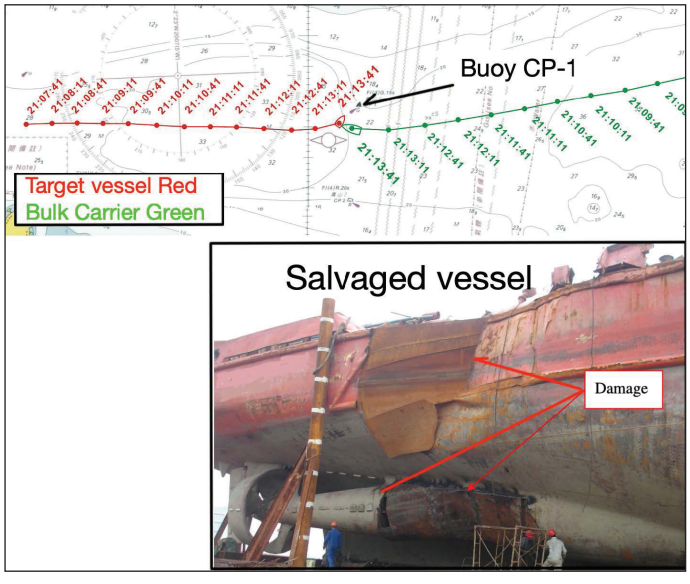
https://maritimesafetyinnovationlab.org/wp-content/uploads/2016/09/hk-bulker-and-supply-vessel-collision-oct-2009.pdf

➔ A loaded bulk carrier was underway at about 13 knots in a busy marine waterway, in poor visibility and in darkness. The bridge team consisted of the Master, the OOW, a helmsman and a pilot assisted by a co-pilot. Neither pilot had the con; both were advising the Master. At 21:09, the co-pilot advised the bridge team that a radar target was observed near 11° on the starboard bow at a range of 2.5nm and a speed of 10 knots. Visibility was about 2 nm and there was a slight drizzle.

The bulk carrier was steadied on a course of 260°. Both from the radar and visually, the target was fine on the starboard bow at a range of about 2nm. The target showed two masthead lights which were slightly open and a red sidelight. The co-pilot tried to attract the attention of the target vessel by flashing the Aldis lamp. By now, buoy CP-1 was fine on the starboard bow at a range of about 0.9 nm, while the target vessel was very fine on the starboard bow at a range of about 1.6 nm, showing a red sidelight. The pilot expected the target vessel to alter course to starboard, but it kept the same course and speed.

Some two minutes later the pilot asked the co-pilot to contact Vessel Traffic Services (VTS) on VHF radio. VTS was requested to provide information on the target and to advise the target vessel that the two vessels should pass port-to-port to avoid collision. VTS called the target vessel and instructed the vessel to take action to avoid collision. At this point, the pilot on the bulk carrier instructed the helmsman to alter course slowly to starboard in order to enter the deep water buoyed channel with CP1 buoy close on the starboard side.

By this time, the target vessel was very fine on the port bow and at a range of about 0.5 nm. Within seconds the target vessel was observed to alter course to port rapidly. The pilot ordered starboard 20 followed by hard to starboard. The co-pilot sounded five short blasts on the whistle.



As the target vessel continued to alter course to port, the co-pilot on the bulk carrier again sounded five short blasts on the whistle. The pilot ordered port 10 to allow the target vessel to pass clear ahead. Despite these actions, the bow of the bulk carrier struck the starboard quarter of the target vessel at about 90°. The collision was heavy and the bulk carrier vibrated violently. The engine was stopped and the crew mustered to go to anchor, as the forepeak was flooding.

On the target vessel, a supply tug much smaller than the bulk carrier, the engine stopped immediately at the time of collision and the vessel lost power and lights. The OOW informed VTS that the vessel was sinking. The vessel's general alarm did not work, so the Master told the helmsman to raise the other crew members from below and abandon ship. The vessel quickly developed a heavy list to starboard and sank some four minutes after the collision. Seven crew members escaped the sinking vessel and were floating nearby. About 30 minutes later they were recovered from the water by search and rescue (SAR) units. Fifteen remaining crew members drowned inside the vessel.

Lessons learned

- With a closing speed of 23 knots, time is of the essence. The target vessel was detected on radar at only 2.5 nm. This leaves barely 6.5 minutes before collision. Keep a good lookout by all available means.
- The investigation found that 'the pilot expected the target vessel to alter course to starboard'. Yet, for a near head-on meeting, both vessels should be expected to alter to starboard.

MARS 202502

Heat stroke danger

As edited from MSIU (Malta) report 10/2024

https://msiu.gov.mt/wp-content/uploads/2024/07/Elpida-GR_Final-Safety-Investigation-Report-1.pdf

➔ A bulk carrier in ballast was approaching a berth and was expecting to load cargo. The forward mooring team consisted of the chief officer (C/O), bosun and two crew members, while the aft mooring team consisted of the second officer and another two crew members. The air temperature and humidity levels were very high. Air temperature was between 40°C and 45°C with humidity at 76%.

Shortly after the forward spring line was passed ashore, the bosun collapsed on the forecastle deck. The C/O attended the victim and felt his body temperature to be abnormally high. He notified the bridge while crewmembers 1 and 2 carried the bosun to a shaded area on the forecastle deck. Port authorities were advised for medical assistance.

Some minutes later, crewmember 1 also collapsed on the forecastle deck. The C/O reported this to the bridge and he was brought towards the accommodation. On making fast the aft mooring ropes, the second officer sent crew member 3 forward, while he and crewmember 4 assisted in tending to the bosun and crewmember 1, both of whom were unconscious.

The bosun was experiencing difficulty in breathing, while crewmember 1 did not show any signs of breathing at all. Oxygen was provided to the bosun via a portable oxygen resuscitator, while CPR was

administered to crewmember 1. Shortly afterwards, Crewmember 3 also collapsed, some 35 minutes after the first casualty,

Crewmember 3 was carried back towards the accommodation by two other crew. After all mooring lines were made fast, the Master updated the local port authorities on the situation. A shore service boat soon arrived at the vessel's starboard side and Crewmember 1 was evacuated to the terminal. The second officer and an oiler accompanied the victim, continuing to administer CPR until the boat arrived at the terminal. Another service boat arrived soon after and the bosun was evacuated.

A third service boat arrived and took crewmember 3 to the terminal. Shortly after, the C/O was also taken to the terminal by a service boat as he was not feeling well. From the terminal, all four victims (the Chief Officer, the bosun and two crew members) were transferred by ambulance to a local hospital. One victim was later declared deceased having suffered acute respiratory failure due to heat stroke, which led to a cardiac arrest. The other three victims recovered.

Lessons learned

The International Medical Guide for Ships advises the following actions for a patient suffering from heat stroke (or heat exhaustion):

- Move the patient into a cool environment.
- Remove all the patient's clothing.
- Spray or splash the patient's whole body with cold water and fan them vigorously or immerse them in a bath of cold water.
- Seek medical advice with a view to evacuation: even if body temperature is brought under control, heat stroke can cause life-threatening damage to internal organs.
- If body temperature does not fall below 39˚ within 30 minutes, place the patient in an ice-water bath. Take the patient out of the bath as soon as rectal temperature has fallen to 39˚.

Never underestimate the nefarious effects of heat and humidity. Stay hydrated and ideally use electrolytes with water.

Seek shade whenever possible. Lower your body temperature by dousing with water.

MARS 202503

A hidden tripping hazard

➔ An engineer was conducting a safety round in the engine room workshop welding area while the vessel was underway. Some welding had been done earlier but was not yet finished and the welding curtain was still in place. As he walked, he hit his foot on a loose pipe on the deck that had been hidden by the welding curtain.

The engineer lost his balance and fell on the deck, with the left side of his back hitting the flange of the pipe. He was able to stand back up and immediately informed the chief engineer. The victim was given preliminary first aid and 10 days later sent ashore for an examination. He was diagnosed with bruised ribs and was proactively repatriated five days later.

Simulation of the accident

Lessons learned

- Every close call or incident/accident should immediately be reported, as in this case.
- Simple good housekeeping habits can help avoid such tripping accidents.
- Even mundane trips can cause injuries severe enough to lead to repatriation.

MARS 202504

VLOC goes down in 5 minutes with 22 of 24 crew

As edited from KMST MSI (South Korea) report MSI Report 2022-001
https://www.kmst.go.kr/eng/board.do?menuIdx=229&bbsIdx=100211

➔ A Very Large Ore Carrier (VLOC) loaded with iron ore fines was underway with a combined wave (wind and swell) of about 3.7m on the starboard side. The vessel was built as a VLCC, but was modified and converted into a very large ore carrier after sixteen years of tanker operations. After the conversion, the vessel's length, beam, and depth remained the same (311.89m L, 58.00m B, 29.50m D respectively). However, the gross tonnage and the deadweight tonnage had increased due to structural changes to the cargo hold hatches and an increase in the load line. Following the conversion, the ship had been operating as a VLOC for eight years.

Casualty vessel before sinking

At about 13:20 local time, the vessel's superintendent ashore received a social media message from the ship that said, 'Emergency. The ship's No. 2 Port is leaking. The ship is rapidly inclining to port.' The superintendent asked the ship to call via satellite phone but heard no response from the ship. About one minute after the message was received, a distress signal from the vessel was received via INMARSAT-C Digital Selective Calling. The next day, two crewmembers were rescued from a liferaft. None of the remaining 22 crewmembers were ever found.

One of the survivors later said that he heard a loud crash and felt the hull vibrate. He went to his cabin to put on a lifejacket, got his immersion suit, then went to the muster station on the port side outside the accommodation area. However, no one was there when he arrived. Then he heard the Master's announcement, saying 'All crew go to bridge'. He went onto the bridge using the outside ladders of the accommodation area. Once on the bridge he saw the Master and some other crew, but the vessel was already listing heavily to port. The ship heeled further to port, and when water was about to flood on the bridge, he jumped into the sea from the port bridge wing. The vessel went down some five minutes after the initial loud bang had alerted crew to the situation.

The investigation found, among other things, that the loading conditions of the vessel satisfied the damage stability criteria required by the conventions at the time of the accident. Even if ballast tanks 2 and 3 (P) were both damaged, it seems hard to establish that this would have caused the ship to sink in such a rapid fashion.

The investigation also found that although the vessel had loaded a liquefiable cargo of iron ore fines, the moisture content of the cargo was below the transportable moisture limit (TML) when loaded. There was no rain during loading, and no significant amount of bilge water was in the cargo holds while the ship was underway. Therefore, it was deemed unlikely that the cargo had liquefied during the voyage.

Lessons learned

- Although liquefaction of cargo and the resulting loss of stability has been a contributing factor to some high-profile bulk carrier losses in the past, this accident seems to have been caused by another source.
- Over more than 24 years of operation, asymmetric loads (hence pressures) would have placed excessive stress on the lower shell plate, gradually causing a loss of hull strength, both structural and fatigue related. This resulted in catastrophic hull failure, causing the large vessel to sink within 5 minutes.
- Vessel loss due to 'structural weakness' seem unimaginable given the rigorous inspection regimes imposed on operators. Yet, this outcome can still occur, as this sinking demonstrates – twenty-three years after the sinking of the vessel *Erika* off the coast of France, where the investigation determined, among other things, that the vessel had sunk due to loss of structural strength. According to the *Erika* report, the visible elements of the hull had aged rather better than the structural elements, which were far more difficult to inspect on a continuous basis.

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