mars
Mariners' Alerting and Reporting Scheme

MARS – Lessons Learned

MARS Report No 381 July 2024

MARS 202435

Collision in daylight and good visibility

As edited from MAIB (UK) preliminary assessment 3/24
https://tinyurl.com/MARS202435

➔ In daylight and good visibility, cargo vessel A was making about 12 knots with a lone OOW on the bridge. Auto-pilot was being used for helm control and the OOW was occupied with administrative tasks. The radar was on but targets were not being acquired and alarms were not activated.

Meanwhile, about five nm away from vessel A, vessel B had recently stopped and was drifting due to technical difficulties with the main engine. This vessel's lone OOW had not updated the vessel status to 'not under command' (NUC) on the AIS, nor were the required NUC day signals raised. Vessel A maintained its course and speed, with a steady bearing and decreasing range to vessel B.

Over the next 20 minutes, vessel A's OOW continued to undertake other duties on the bridge and was not monitoring nearby traffic. As vessel A approached the drifting vessel B on a virtual collision course a crew member who had been working on deck ran to the bridge and alerted the OOW to the developing situation. Still making a speed of 12 knots, the OOW immediately used the autopilot to initiate a turn to starboard before switching to hand steering to increase the rudder angle. However, the turn was not sufficient to avoid collision 10 seconds later. Vessel A's port side struck vessel B's starboard quarter, resulting in hull damage to both vessels above the waterline.

The preliminary assessment found, among other things, that the ECDIS unit on both vessels was set to silent mode, with all audible alarms deactivated while underway. Also, although vessel B was visible on both of vessel A's radars, the target had not been acquired on the ARPA.

Lessons learned

- An OOW should actively navigate the vessel and not undertake any other tasks, ever!
- Activated alarms are an asset when at sea – use them.
- If your vessel's navigational situation changes, set the appropriate instruments and signals to reflect this change in status.

MARS 202436

Leak while bunkering caught in time

➔ A tanker had berthed for discharge operations and had also ordered bunkers. A bunker barge arrived at about 2:15 in the morning and was secured on the port side of the tanker. The bunker hose, supplied by the bunker barge, was connected to the tanker's bunker manifold and surveyed to the extent possible by the tanker crew. Everything appeared correct and bunkering commenced with an initial rate of 40 tonnes/hr.

The bunkering station reported normal operations and no leaks so the rate was gradually increased to 180 tonnes/hr. Soon after the rate increase, a minor leak was observed in the hose and the bunkering was stopped. A small quantity of oil had spread on deck and was cleaned. No oil was seen to be released into the sea.

The bunker hose had apparently been tested under pressure four months earlier but was now clearly less than adequate for the job.

Lessons learned

- Visual inspection of a bunker hose before use is necessary but cannot guarantee the integrity of the hose under full operating pressure.
- Vigilance at the bunkering station is a primary defence against pollution. When bunkering in darkness, ensure the hose is well lit and visible along its entire length.

MARS 202437

Chemical burn due to inadequate PPE

➔ Cleaning procedures were in progress on a vessel's empty holds. A solution of water and chemicals with a high alkaline value was being applied via a spray nozzle. Crew were protected with personal protective equipment (PPE) including chemical suits and rubber boots.

One crew member's chemical suit was somewhat short and there was insufficient overlap with the boots. During the cleaning process, spray droplets on the chemical suit trickled down the length of the suit and entered the boots. The crew member continued to work unperturbed. Later, when he removed the boots, he saw his feet had been burned by the alkaline solution.

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Lessons learned

- It would appear the crew did not realise the extent of the risk of exposure to the washing solution. High alkaline or acidic levels always require maximum protection and awareness.
- The gap between the chemical suit and the boots was not noticed or was considered inconsequential. A STOP WORK action would have been appropriate if it had been noticed.

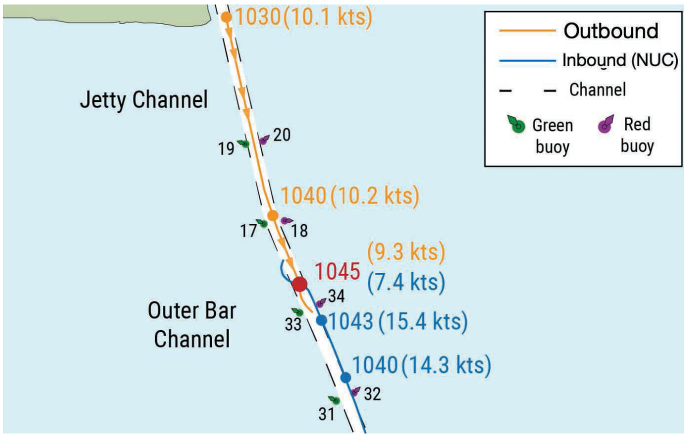
MARS 202438

False engine alarm causes collision

As edited from NTSB (U.S.A.) report MIR-23-16
https://tinyurl.com/MARS202438

➔ Engine personnel on a partially loaded cargo vessel performed maintenance while at anchor to replace a failed cylinder head gasket. The vessel then took on a pilot and was inbound for the port to discharge the remaining cargo. Meanwhile, another vessel, also under pilotage, was outbound. The pilots had made arrangements over VHF radio to pass port to port at the Outer Bar Channel where the width of the navigable waterway was about 245m.

Shortly before the two vessels met, the main engine alarm detection panel on the inbound vessel recorded a high oil mist density reading, and the main engine shut down automatically. This also caused the loss of the bow thruster. The remaining electrical equipment and instruments, including the steering gear, continued to be powered. The vessel was now drifting and Not Under Command (NUC).



The pilot aboard the drifting NUC inbound vessel broadcast over VHF radio that the vessel had lost propulsion and the vessel started veering to port. The pilot ordered hard starboard rudder and instructed the captain to 'sound the danger signal'. The pilot confirmed the rudder's response on the rudder angle indicator, but, despite maintaining hard starboard rudder, the bow of the drifting vessel continued veering to port, across the channel and toward the path of the outbound vessel. Without propellor thrust the helm was virtually useless.

On hearing the VHF radio broadcast, the pilot of the outbound vessel ordered the vessel's rudder hard to starboard and an increase of main engine speed by 10 rpm in an attempt to manoeuvre away from the approaching NUC vessel. Faced with the NUC vessel cutting across the channel, he ordered the rudder to midship, and then ordered a hard port rudder. He believed this manoeuvre was now the only way to avoid contact with the drifting vessel.

Two minutes after having lost main propulsion and with the NUC vessel still moving at a speed of 7.4 knots and the outbound vessel at 9.3 knots, the bow of the NUC vessel struck the port quarter of the outbound, peeling back about 12 metres of that vessel's hull plating forward of the transom and wrapping it around the stern.

The official investigation found that the automatic shutdown of main engine on the inbound vessel was likely due to a false alarm. The investigation posited that the oil mist detector had sensed water vapour resulting from the engine maintenance and incorrectly identified it as oil mist. This had falsely triggered the alarm and ensured the automatic shutdown.

Lessons learned

- Cooling water can be introduced into engine lube oil systems during maintenance. Ambient air conditions, such as high humidity or extreme cold temperatures, can also increase the water content within engine lube oil sumps. An elevated quantity of water in lube oil systems can trigger false alarms in engine crankcase oil mist detectors (and lead to an engine shutdown).
- After an engine's crankcase is opened and exposed to cold or humid conditions during maintenance and repair, it is good practice for engine crews to inspect and test the lubricating oil system for water intrusion and ensure lube oil purifying equipment is functioning properly to remove any water or other contamination in the lube oil.

MARS 202439

BRM failure contributes to shore contact

As edited from TAIC (New Zealand) report MO-2016-202
https://tinyurl.com/MARS202439

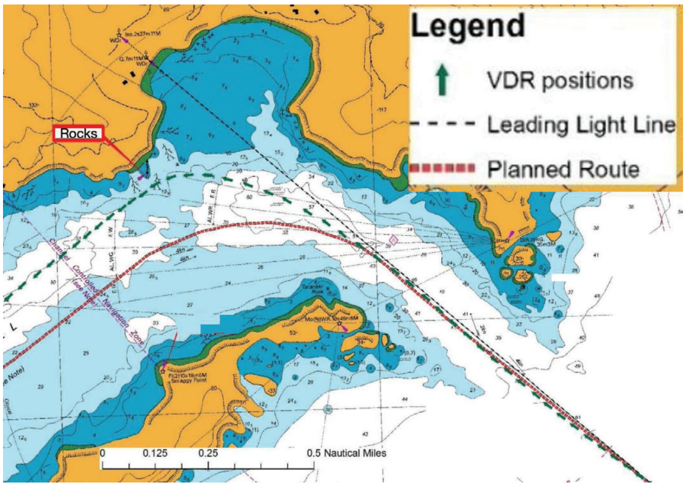
➔ A passenger vessel was inbound for a port in daylight conditions. Visibility was moderate, but still in excess of one nm. Under the effect of the tidal stream, the vessel was travelling at 12 knots. A pilot was taken on board before entering the more restricted waters closer to the port area, and an exchange of information was accomplished. When the pilot asked about the turning characteristics of the vessel, the Master mentioned that the ship was highly manoeuvrable and would 'turn on a dime'. He added that a three-degree helm order would create a rate of turn of 10-15 degrees per minute.

As the vessel approached the first turn to port, the pilot was concerned that too much initial port helm would be detrimental due to the tidal push from the northeast. Recognising the good manoeuvrability of the vessel, he ordered three degrees of port helm. By now the vessel was making almost 18 knots due to the tidal stream partially astern.

Although a navigation officer was assigned duties at the ECDIS and radar, at no point did he give data on the vessel's progress such as actual track versus planned track. Nonetheless, the pilot soon realised that the ship was not turning to port as expected, so he ordered five degrees of port rudder followed by 10 degrees in quick succession. The ship was now to the right of the intended track and the cross-track distance from the intended track was increasing rapidly to starboard.

The staff captain noticed the predictor on the ECDIS/Radar display had the ship passing over the land ahead and to starboard. He suggested to the Master that they increase the rate of turn. The Master reassured the staff captain that the cross currents were strong and would bring the ship back to the middle of the channel, reiterating what the pilot had explained during the pilot/Master information exchange.

Soon, an off-track alarm visually flashed on the ECDIS, although audible alarms had been muted before entering the restricted waterway. The ship had departed the predefined safety corridor either side of the planned track, but this information was not brought to the attention of the Master or pilot. Yet, by now they both realised that the ship was proceeding dangerously close to the rocks on the starboard side. Twenty degrees of port rudder was ordered, immediately followed by maximum port rudder. The ship responded with a rapid turn to port. When the ship was approaching the closest point to the rocks on the starboard side, the Master ordered maximum helm to starboard in an attempt to arrest the rapid port turn and prevent the stern from striking the rocks. The ship's bilge keel and the starboard propeller nonetheless made contact as they passed the rocks. The ship was then navigated back to the centre of the channel and continued on its passage to port without further incident.



Lessons learned

- The concept of allowing a ship to depart from an intended track in the belief that other influences, such as tide in this case, would return the ship to that track carries a high risk when manoeuvring large ships in narrow waterways where margins for error are small. There is less risk involved when a ship is kept strictly to the intended track by increasing or decreasing its rate of turn in response to the influences of factors such as tide and wind.
- Also, the above manoeuvring method leaves other members of the bridge team tasked with monitoring the progress of the ship against the planned track in limbo. How can an officer or Master 'challenge' the person with the con if the situation is intentionally obscure or undefined?
- Good BRM practices help to ensure that the best decisions are made and any errors or malfunction of equipment are identified and corrected before an incident can develop. In order to achieve this objective and navigate a ship safely, a shared understanding of the passage plan by the entire bridge team is critical.

MARS 202440

Are your watertight doors watertight?

As edited from IMCA Safety Flash 08-24
https://tinyurl.com/MARS202440

➔ During a safety walkaround on a vessel it was observed that several type C watertight doors (doors that must remain closed at all times and opened only when personnel pass through them) were routinely kept open while underway. It was expressly indicated in the vessel's procedures that these doors must remain closed while at sea.

A review of similar cases on two other fleet vessels found that watertight doors were left open after the regular engine room walk around, as this was a regular activity and there was 'no point to open and close [them] each time.' It was also found that some crew were not aware of the relevant SOLAS and SMS requirements or the importance of keeping type C watertight doors closed at sea in case of emergency.

Lessons learned

- Watertight doors are critical elements in preventing the ingress of water from one compartment to another during flooding or accidents. The seaworthiness of the vessel depends on their proper use.
- As with many safety critical elements on a vessel, acceptance of procedures such as keeping type C watertight doors closed by crew is dependent on the safety leadership of senior officers and the Master.

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